WIREBYTES 5.0

2023

ANNUAL NEWSLETTER OF ZAIRZA

ANECDOTES FROM A COMMUNITY OF TECH ENTHUSIASTS DISCUSSING THEIR FORAYS INTO THE WORLDS OF ROBOTICS, SOFTWARE, AND DESIGN.

GET KNOWLEDGE OF MULTIPLE DOMAINS



About who we are !!

KNOW MORE ABOUT US AND JOIN US NEXT YEAR

A learning space. A tech haven. A community. These are but a few definitions of Zairza. More than just the premier technical club of the college; Zairza is a dynamic organization where we consistently work to attain greater heights in the fields of robotics, software, and design and try to bring dreams and ideas to life. Zairza, a community of ambitious, imaginative, and dedicated people, is a constant work in progress, with the emphasis on developing our abilities and stretching the boundaries of our minds to wonder, think and create something innovative every day.



Vice-Chancellor's Desk



I am warmly delighted to learn that the student members of Zairza Club of Odisha University of Technology and Research are bringing out their annual mouthpiece "Wirebytes".

Our budding talents have expressed their thoughts, ideas, hopes, feelings, aspirations and convictions in a creative way. The Academic activity is continuously geared up and monitored to cope-up with emerging trends of technological development and innovations. With this spirit and tempo being maintained, I am sure the University is going to occupy noticeable place among the technical institutions of India. I am confident that due to various activities by the students' clubs, the students of OUTR get exposure to academic and professional fields which will leave a mark of their services, wherever they go, by exhibiting their sound professional knowledge, unimpeachable character, sense of discipline and commitment.

OUTR is an abode of young minds with full of dreams in their eyes. OUTR symbolizes hope and faith. Hope that "the impossible will soon be possible" and faith that "ignited minds will turn dreams in to reality". The zeal to excel in life becomes a routine, inspiring the search for new vista and innovations. These thoughts have become infectious and craft self-esteem and optimism which in turn provides a moral impetus in the young ones who are a part of the OUTR family.

We live in a time with increasingly digitized and networked society. Our University provides a platform for every student to develop his/her learning skills through different extracurricular activities. The Zairza Club by the students is one of the activity centres where the students learn, hone and exhibit their latent technological knacks and enjoy being a part of it. "Wirebytes" unfolds the landscape of their activities and speaks about their creative minds in a precise way.

I wish all the best to Team Zairza on the occasion of bringing out "Wirebytes".

Dr. Bibhuti Bhusan Biswal
Vice Chancellor



Vice President (Technical) Desk

I am thrilled to announce the release of Wirebytes 5.0, Zairza's Annual Newsletter. As the Technical Vice President of our university, I am incredibly proud of the dedication and creativity displayed by our club members in curating this edition. Wirebytes 5.0 is a testament to our commitment to fostering a culture of innovation and collaboration. Within its pages, you will find inspiring articles, project highlights, and event coverage that showcase the remarkable achievements of our Zairza family. I extend my heartfelt appreciation to the team behind this masterpiece and encourage everyone to explore the newsletter. Let it inspire us to continue pushing the boundaries of technology and education, shaping a brighter future together.

Mr. Santanu Sen
Assistant Professor



Professor In Charge's Desk

It gives me immense pleasure to introduce the 2020-21 edition of the Zairza Technical Society Newsletter. I would like to take this oppurtunity to thank the editorial team for their efforts in putting together a wonderful and informative newsletter. Notable achievements by our students, alumni have been highlighted along with the activities here at Zairza.
We welcome your inputs for future newsletter and urge to stay connected with us through email and social networking sites and visit us whenever possible.

Prof.(Dr.) Rati Ranjan Dash
Professor in Charge, Zairza Technical Society



Advisor's Desk

It gives me immense pleasure and joy to extend my best wishes and encouragement to the enthusiastic young minds of CET, Bhubaneswar who are a part of the Zairza Technical Society.
They organize training programs on various fundamental subjects in their field of excellence to the freshers of all departments. I wish success and encouragement to all the members of the society and wish that Zairza Technical Scoiety will continue with the same vigour and spirit in future.

Prof.(Dr.) Chandrabhanu Mishra
Advisor, Zairza Technical Society



Coordinator’s Desk
Shuvam Kumar Panda

I am thrilled beyond measure to announce the much-awaited release of Wirebytes 5.0 - a culmination of the brightest technical and creative ideas from the incredible minds of Zairza. This version represents the epitome of our collective efforts, innovation, and dedication.

It's definitely true that the people and your surroundings influence you, your perspective, and your decision making abilities. And that's the same with me as well. Since my freshman year, Zairza has been the guiding light in my life. It has played an instrumental role in shaping who I am today. Yes, I might not be my best version right now but it's definitely the better one! This technical club has shown me that true success is achieved through hard work, perseverance, and a passion for constant learning.

Zairza has consistently gone above and beyond, breaking the barriers of conventional education and providing a platform to explore, create, and innovate beyond the confines of the classroom. It is this spirit that has given me a remarkable and adorable family - a community of like-minded individuals who support, inspire, and encourage each other to reach new heights.

As we unveil Wirebytes 5.0, I am confident that it will surpass all expectations. Let us continue to push the boundaries of technology and creativity, just as Zairza has done for all of us. Congratulations to each and every member who contributed to this release - your hard work and brilliance shine through!

Thank you for being a part of this incredible journey.



Convenor’s Desk
Prachetas Padhi

With the release of Wirebytes 5.0, Zairza keeps its legacy of releasing its annual newsletter. If you are in freshman or sophomore year, go through the fascinating tech stacks that people have been working on relentlessly. This newsletter shall be the reason why a person with past connections to Zairza can be proud of. We have been working relentlessly to organize events, have some publications, and develop innovative eye-catching projects. Do have a look at the hard work that people have put on.

This year's newsletter is a testament to the boundless creativity and dedication of our technical club members. From cutting-edge mobile applications and AI exploration to sustainable tech solutions, our diverse projects showcase our passion and expertise. Together, we push the boundaries of innovation, fostering a collaborative spirit that defines Zairza. Explore the articles and find inspiration in our journey as we continue to grow and thrive together. Thank you for being part of this exciting venture!



Designer’s Desk
Satyaprakash Ray

In my pursuit of growth and self-discovery, Zairza became the transformative platform that shaped my career from an average student to a proficient front-end developer and, ultimately, a successful full-time product designer. The reputation of Zairza as the best club initially intrigued me, but it was the people here who truly made the difference. In our first year, we heard countless praises about the club, and upon joining, I found that the accolades were well-deserved. Zairza's community embraced us warmly, treating us like family and guiding us at every step to unleash our true potential. I always had a passion for design, and Zairza provided me with an array of design domains to explore. With my friends, I embarked on a journey of learning, struggling, and growing together.

Gratitude flows towards the whole editorial team for curating the diverse works of talented individuals, resulting in Wirebytes 5.0—a source of inspiration for countless others to explore new domains and achieve milestones. I extend my appreciation to the seniors, juniors, and batchmates for their invaluable contributions in drafting and publishing Wirebytes 5.0. I credit my success to the dedication, mentorship, and collaborative spirit that Zairza instills in its members.

To all current and future Zairza members, I wish you the best on your journey of growth and achievement. May you follow in the footsteps of our seniors, leaving a legacy of excellence and nurturing the talents of your juniors as they did for us. Zairza is not just a club; it's a home for aspiring minds to flourish and thrive.



Designer’s Desk
Pratik Biswal

Hello Tech Enthusiasts. Hope you find my experience beneficial. It’s been a hell of a ride for my 4 years at Zairza. And it’s an honor for me to be a part of Wirebytes for this year. The phase between the completion of school and the start of college is a peculiar phase. You meet new people, not knowing what to expect, except for expecting good friends. Well among all these expectations, rather than friends, I found my family, my tribe, my cult, my place. Zairza, where talent met opportunities. You are encouraged for what you can do and credited for what you deserve. Ambitions need resources and I had a lot of ambitions. An intern for Texas A&M University, ISRO, DRDO & Samsung, needed resources and Zairza gave me the knowledge and opportunities to freelance and lead for what I am always grateful for. Crazy isn’t it, just an otaku, wanting a career in aerospace, freelancing as a videographer. This odd combination was gladly embraced by my seniors in ZAIRZA. And when responsibilities were handed over, leadership qualities were developed. My seniors & my juniors have been with me through these tough times and I can proudly call them family.

We are trying to bring in every form of digital content design including VFX, GameDev and 3D Design among others, for advanced learning in the wing. We successfully hosted, Zairzest where we tried our best to give the participants a spectacular experience in terms of design and visuals. At last, I would like to thank my seniors Debanshu Samal, and Stephen Rejinold for teaching me design. My batchmates and my juniors for being the absolute gems. And Sourav Rath, for being by my side when I needed it the most. Zairza is to be credited for everything that I have achieved until now and I shall always remain grateful for the same. Wonder Think Create

The Publishing Team



Satyaprakash Ray
2023 Batch,CSE



Ashutosh Panda
2024 Batch, ME



Jyoti Nanda
2024 Batch,E&I



Subhasmita Pradhan
2024 Batch,CSE



Ashish Mohapatra
2024 Batch,IT



Sangyashree Pattnaik
2024 Batch, Biotech



Jayant Agarwal
2025 Batch, CSE



Arijeet Mohanty
2025 Batch,IT



Priyarani Mallick
2025 Batch,IT



Suyra Pratap Singh
2025 Batch,IT



Jasmin Pradhan
2025 Batch, IT



Harsh Kumar
2025 Batch, CSE

Achievements !!

KNOW WHAT MAKES US PROUD

- 2 teams from zairza bagged first prize in Smart India Hackathon in their respective problem statements.
- 2 Teams from zairza bagged 2nd and 3rd prize in Smart Odisha Hackathon 2022 in their respective problem statements.
- Team Rudhira from zairza bagged first prize in UMO contest which is an international design competition.
- Team Zephartemis won first prize in Robo Race at Adastra event in EATM.
- Team Zephbotz woh second prize in Robo Race at IIT Bhubaneswar.
- Parul Sahoo from Zairza was invited to attend an open source event at Dublin for her outstanding contributions to open source community.
- Sidharth Mohanty from Zairza has been selected in Google Summer of Code for his contributions in Rocket Chat.
- 2 Teams from zairza bagged 1st and 2nd position in Jantrajuga, state level hackathon organised by Mool and Reverie.
- A research paper got published at the International Conference on Automation,Computing and Renewable Systems, IEEE.



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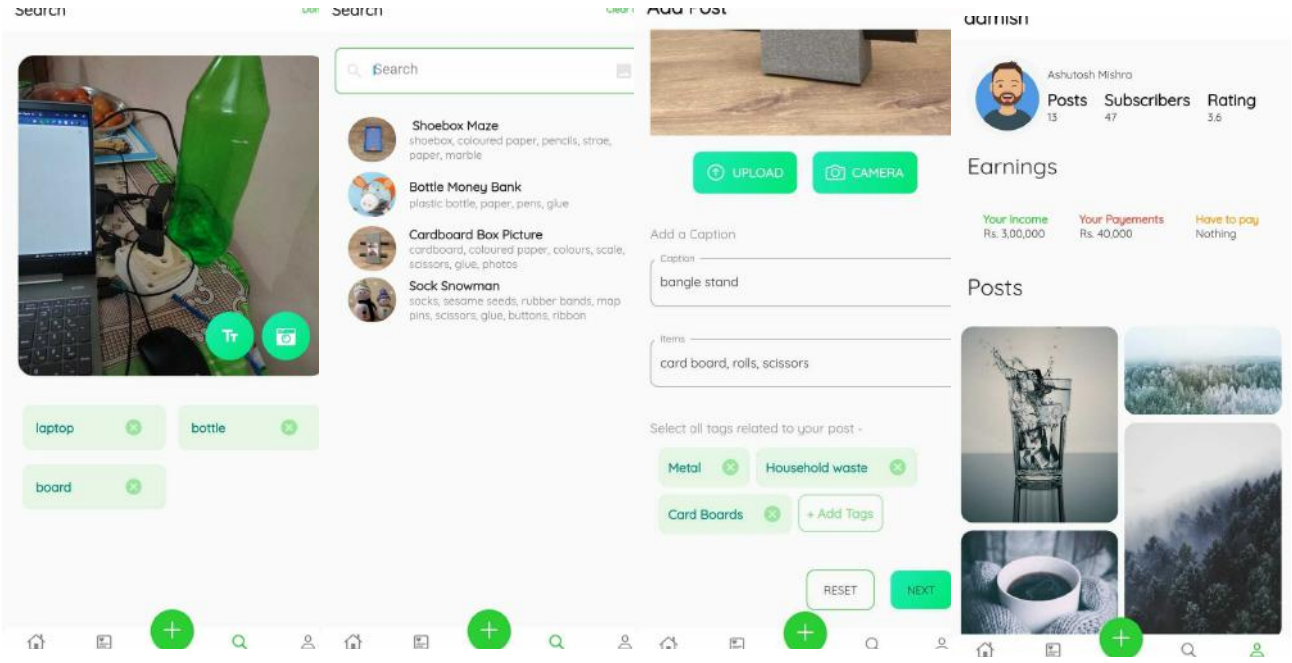
Reflecting upon my time with Zairza, it's impossible not to be fl...

SOFTWARE

"TECHNOLOGY IS A USEFUL SERVANT
BUT A DANGEROUS MASTER."



Recyclo



With the advancement of technology, humans have been able to broaden their horizons and create anything they want. But with these useful creations, some unusable byproducts are also generated, which end up being trash/ waste. The accumulation of this waste has a very alarming effect on the environment. This was the motivation behind this project.

Recyclo aims to reduce the total solid waste output of a household by encouraging people to create artwork/projects with unwanted items. One can click a picture/pictures of the items like used pens, ice cream sticks, cardboard, CDs, etc. and recyclo will recommend projects one can make using those items.

recommend projects one can make using those items.

Once a person has completed his project, he/ she can post it in the feed. Using recyclo he/ she can also sell the making procedure or the item itself. Thereby encouraging people to create artwork/projects and minimise waste.

A user can browse through a collection of different projects on the feed page. He/she can also subscribe to a monthly/yearly plan to know the procedure or can buy the product itself.

For users aiming to work on a specific type of project, he/she can also browse through a selected selection of posts based on ‘tags’ in the explore page.

PROJECT BY:



Ashutosh Mishra

2023 BATCH,E&I



Arya Shreyas Das

2023 BATCH, IT

Understanding React

Generally, we create a JSX element and render it in our browser using react DOM (in case we are working on the web). We use many react hooks and methods that make our life easy. But let's deep dive and understand how react actually works.

```
const [state, setState] = useState();
```

Let's start from the very basics.

```
const App = () => {
  return (
    <div>
      App component
    </div>
  );
};
```

This is a react component that returns some react elements using JSX i.e. Javascript XML.But it is not what it is. To React the above piece of code looks like an object. Something like this.

```
{
  "$$typeof": Symbol(react.element),
  key: null,
  props: { children: "App component" },
  ref: null,
  type: "div",
}
```

You can also look at this object by logging the particular component to your console.
So what is actually happening, the JSX component gets converted to many React.Element function calls. Then these functions return appropriate objects (like shown above). This is the reason why you had to import react everytime you created a new component. However, from React 17 you don't have to explicitly import react from react.

Now let's understand the object itself.

```
{
  "$$typeof": Symbol(react.element),
  key: null,
  props: { children: "App component" },
  ref: null,
  type: "div",
}
```

This is what we try to write in react to get the required output but

```
1 const App = () => {
2 return <div>App Component</div>
3 }
```

This is how the above code gets executed by the browser.

```
1 const App = () => {
2   return /*#__PURE__*/React.createElement("div", null, "App Component");
3 };
```

Here in the function, the first parameter is the element type, the second one is the props and the third argument is the children.

```
const App = () => {
  return (
    <div>
      App component
    </div>
  );
};
```

```
class App extends React.Component {
  render() {
    return (
      <div>
        App component
      </div>
    );
  };
};
```

So what a react element is basically the return value of a functional component or output of the render method of a class component. But React components do not only involve with output but also input which we proudly call them as "Props"

```
<React.StrictMode>
  {console.log(<App />)}
  <App />
</React.StrictMode>
```

If you will console log the <App /> then you will find that the type is a function that means react is calling the function behind the scenes to render our component.

React creates a tree of elements and is very efficient in doing the same since it uses plain javascript objects to create the tree. This tree of react is called Virtual DOM. But changing virtual DOM is not not going to change the real DOM. So we sync the changes of Virtual DOM with the Real DOM tree. So React takes the old tree and compares it with the new tree to find out the minimum number of operations required to convert it to the new tree. This is done by using an algorithm called the Diffing Algorithm. Two assumptions are made while applying the diffing algorithm.

1. Two elements of different types will produce different trees.
2. When we have a list of child elements which often changes we should provide an unique “key” as a prop.

Since we have already dove this much deep into the world of react so let’s dive a little deeper into the diffing algorithm as well.

CASE 1:



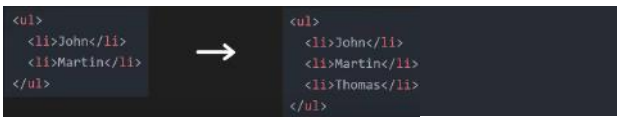
Here the Diffing algorithm will create a new tree from scratch inside the divs in both the cases.

CASE 2:



Here since only the classNames i.e. one attribute is changed so, instead of creating a whole new tree diffing algorithm will just update the attribute.

CASE 3:

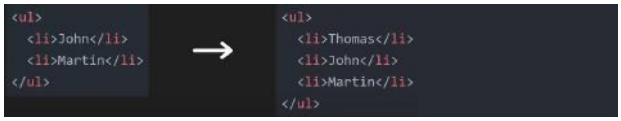


Here we are just adding another list item to an unordered list.

React first compares the first item and recognizes that they are same.

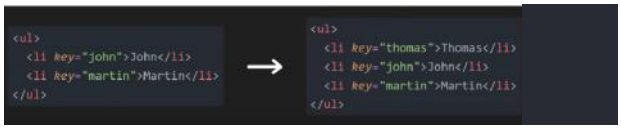
Then it notices the 3rd item and hence inserts it. So there’s is no such creation of new tree.

CASE 4:



Here, we are adding a new list item to the unordered list.

When React tries to compare from the first then it finds that the elements are different. So it creates a new tree. But this is not what we want because let’s say we have 1000s of list items in the list and we are just adding a new item to the first. So it would be creating the whole tree just for one element which is not acceptable.



In this case we can provide keys. Using these keys we tell react which elements are old and which are new.

N.B. This is the reason why can’t use index number as the key since it will change if we try to insert something at the beginning.After all this tree comparison, deletion and creation, we need to render these trees to display it to the user. So react uses “Renderers” like ReactDOM to render the trees.

```
ReactDOM.render(
  <App />,
  document.getElementById('root')
);
```

You must have noticed this when you have started a react app. So this was a basic explanation of how react as a framework works behind the scenes. So let your curious brains do some research and learn how the react hooks works!!

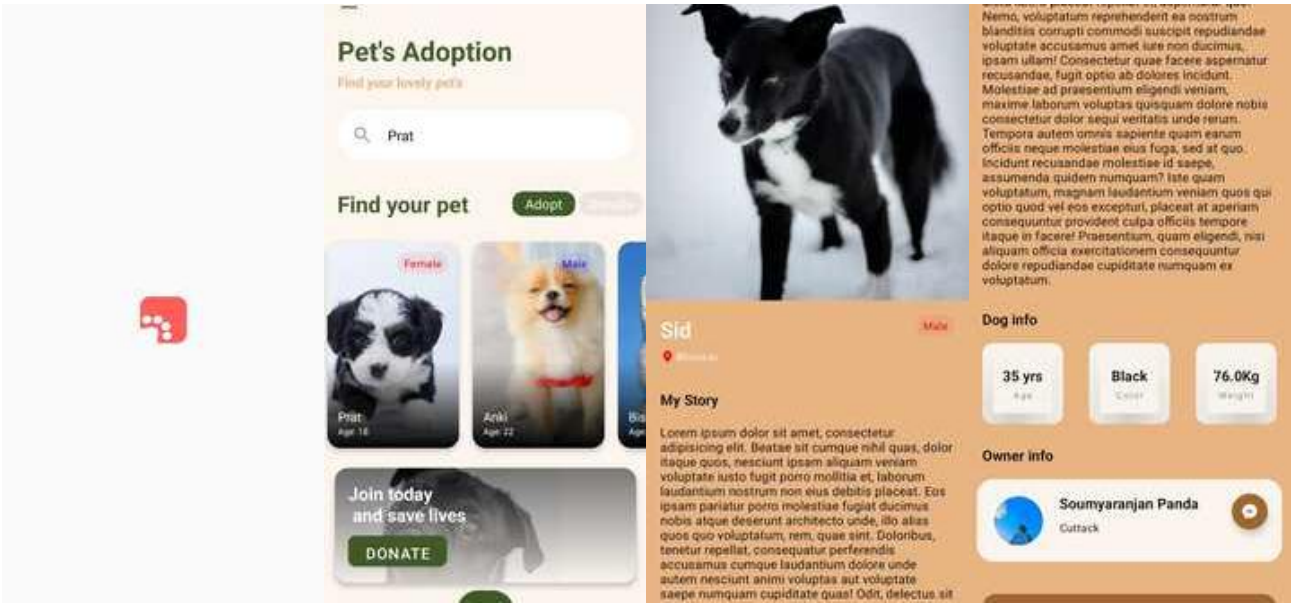
ARTICLE BY:



Shuvam Kumar Panda

2023 BATCH, IT

DostApp



Every year, 6.5 million dogs, cats, and other former pets are abandoned or lost and enter shelters. But of all these animals, only 3.2 million are adopted and many see shelters again after less than a year of finding a new home. The NGOs which keep and nurture animals usually face the issue of not getting people to the adoption of these living creatures. The accessibility to get the soul-saviors by traditional method becomes a wholesome act.

Introducing Dostapp, a mobile platform for NGOs to connect with animal lovers and display the animals available for adoption from the comfort of their homes.

The platform aspires to bridge the gap between pet lovers and needy souls who are in search of their forever home. The app has a simple and interactive interface that helps the user to easily navigate and find their pet. It has detailed descriptions aided with photos and videos of their favorite companions which users can have a look at, with ease. The simple and easy views design functionality of the app makes use of familiar audience EditText with hints and interactive buttons which makes it easier for users to adopt and donate pets. The app also uses App Navigation to switch between different screens. The users can contact the NGOs through the details provided and visit the organization to proceed with adoption and legalities.

PROJECT BY:



Soumyaranjan Panda
2025 BATCH,E&I



Siddhart Das
2025 BATCH, CIVIL



Ayanesh Dash
2025 BATCH,E&I

VoiceGTPT



This project is an AI-powered voice assistant app that was developed using the ChatGPT API and the flutter framework. The app allows users to interact with the system through voice input, which is then transcribed and sent to the ChatGPT API for processing. The API generates a response in text form, which is then converted to speech using text-to-speech technology. This allows the user to hear the system's response in a natural and intuitive way.

The app was developed using the flutter framework, which is a popular open-source framework for building mobile applications. The framework is known for its fast development cycles, expressive and flexible UI, and high performance. The combination of the flutter framework and the ChatGPT API makes this project a powerful tool for creating advanced conversational systems.

The combination of the flutter framework and the ChatGPT API makes this project a powerful tool for creating advanced conversational systems.The app is designed to be flexible in terms of the language and sequence of interactions, making it adaptable to different users and cases. The app can be used in various fields such as customer service, personal assistants, language learning, and many more. The AI-powered voice assistant can understand and respond to spoken language, which means it can be used as a valuable tool for non-native speakers to practice their language skills.

Moreover, the app can be used in different industries and scenarios where the ability to understand and respond to spoken language is crucial, such as in customer service, personal assistants, and language learning. The app's ability to process voice input and output speech in real-time makes it an excellent tool for creating more natural and intuitive user experiences.

In conclusion, this project demonstrates the capabilities of the ChatGPT API in understanding and responding to spoken language, as well as the integration of text-to-speech technology to provide a more natural and intuitive user experience. The use of the flutter framework allows for the creation of a high-performance, responsive, and attractive user interface. Overall, the project showcases the potential for AI-powered voice assistants and conversational systems in various applications, providing a valuable tool for different industries and scenarios.

PROJECT BY:



Ashish Mohapatra

2024 BATCH, IT

Trending Product

FLIPKART GRID 4.0

Social media has become the virtual streets of Paris- fashion changes overnight. Since the past few decades, social media has kickstarted a drastic evolution in fashion. Through platforms such as Instagram, TikTok and Youtube, fashion influencers can reach thousands, even millions of people who want to stay relevant, post-able and just as cool from the moment they wake up to the moment they go to bed. Today's youths are totally swayed by new fashion trends. Youth generation is totally affected by this glamorous world of fashion. Their dressing style, hair style, accessories, language and personality all shows how much they are influenced by fashion.

What if you find all those eye-popping outfits trending in every nook and corner of social media on a single site? You may think this is nuts but it is not. Because we have made it possible. Flip-kart Grid 4.0 gave us a wonderful opportunity to play with data and fashion trends. Our project Trending-product was a solution for the problem statement "Extracting trends from social media data."

The solution goes as follows-

Data collection from social media platform:

- Identifying fashion trends on social media regarding a selected category (Fashion in our case).
- Allotting scores/ranks to the trends based on relevance.
- The dataset contains the following fields-

1. List of images and for the specific trend with the keywords and hashtags to make search easy.
2. Structured data according to flipkart category, sub category, vertical and product attributes.

Mapping trends with Flipkart products:

- Mapping extracted data with Flipkart category, sub category, vertical and product attribute(s), search page links.
- Using the keyword or hashtags of the trending product, we can search the corresponding product which leads to the matching products
- The points to the product are given based on the accuracy and relevance.

So basically the first step of the project is "Data Scraping" from several social media platforms related to fashion trends using API, preprocessing and cleaning of the data, training the model that predicts trends and images related to fashion and again cleaning the data before finally extracting the data for use. The dataset was found on Kaggle and was trained using Pytorch on Resnet architecture.

The future plan is to further improving the model to predict the trends by posts by influencers with utmost accuracy to provide hassle free shopping of trendy clothes to customers. Also, the project focuses on the data of past 3-5 months which in the coming days will be changed to a real time data model to produce results more accurately leading to happy shopping to our users.

PROJECT BY:



Siddhant Sekhar Purohit

2024 BATCH, IT



Biswakiran Das

2024 BATCH, IT



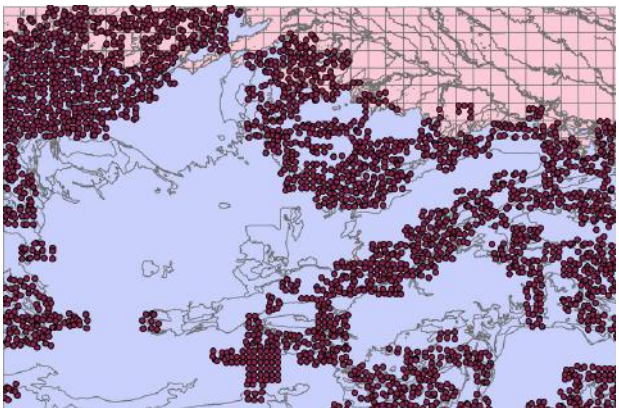
Aniket Mishra

2024 BATCH, IT

Mineral Prospectivity Mapping using AI/ML

AI + GEOSCIENCE!? (WON SIH 2022)

During the period of lockdown we second years planned to participate in Smart India Hackathon 22'. Being beginners in the field of AI/ML we found the topic "Mineral prospectivity mapping using AI/ML" attractive we ended up choosing it. Thinking about it later we realized the attraction was a disguise. Finally after all those sleepless nights we achieved what we wanted to.



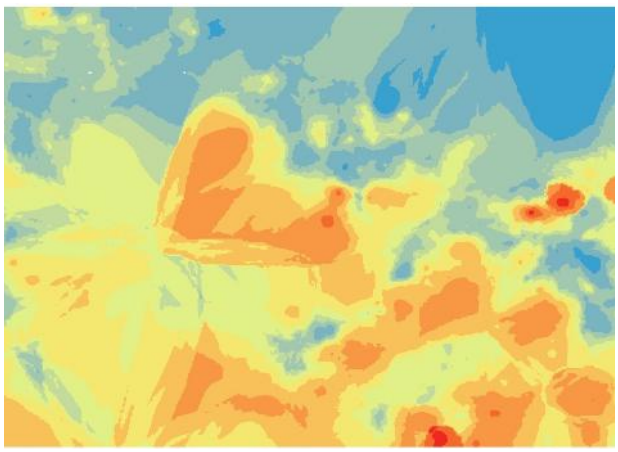
Vector Data Map of Madhya Pradesh showing soil sedimentation data points.

The problems with the traditional process of finding Mineral Deposits is that the process is time consuming, labor intensive, and has marginal rates of success with a dismally low return of investment. The Geological Survey of India (GSI) has large amounts of rich data pertaining to various geological parameters of the different states of our country, all openly available at their BHUKOSH portal. Our idea was to use this spatial big data and use machine/deep learning algorithms to figure out areas which would be host to rich mineral ore reserves for profitable mining.

And so we got started working on the problem. Our first major hurdle came in downloading and viewing all this data.

BHUKOSH is a government site, and just like all things the Indian Government, it took its sweet time in processing our download requests. Downloading those data were real headaches. The format was new to us and after knocking our heads to find a way we got the Geographical Information System (GIS) software.

Once we had viewed the data, and knew what we were working with, we had to organize it in a such a way that it would be easier for us to use with algorithms. The datasets were in two formats, namely vector data and raster data. A lot of the data was in vector format, but for our solution to work, we needed the data in raster format. So one of our major roles in preparing the data was converting a lot of the vector datasets to raster formats, rasterization of data. We used a few different techniques depending on the particular dataset for interpolation of the data, most notably Kriging and Empirical Bayesian Kriging algorithms.



One of the Rasterized Maps of Madhya Pradesh showing Cu concentration in soil.

Defining the Mineral Systems model was our next big step. A Mineral System model essentially has detailed information of all geological factors that control the generation and preservation of individual mineral deposits. This can be achieved in two ways, through pure academic research and analysis, or through empirical data analysis techniques. Ours was a hybrid approach, a mix of both.
Following this process, now that our datasets were prepared, the only thing left was selecting a suitable learning model appropriate for the situation. Our model selection was, a one of a kind epiphany, a breakthrough. We had tried a few models, with decent accuracy. But owing to the similarities of geospatial data and an image's spatial information, we leveraged the model architecture of CNNs creatively to solve this problem. Once we had a matrix of calculated probabilities of mineral potential, we overlaid these and mapped these to the original maps to create a heat map of mineral prospectivity of different regions.



Final Heat Map showing mineral ore rich areas.

As it's said , the journey is more beautiful than the destination, the bonding between the team members was one of the things we took as our trophy from this hackathon .The tables turned right away when we were announced as the winners of SIH 22 , we were on seventh heaven. Hearing the judges saying that our solution was the novel one for this problem statement was priceless. The praises, applauds and the winning hamper were all we can ever ask for.

PROJECT BY:



Ashutosh Panda

2024 BATCH, MECHANICAL



Adarsh Kumar Lal

2024 BATCH, MECHANICAL



Akankhya Panda

2024 BATCH, E&I



Animesh Kumar Dash

2024 BATCH, IT



Gourav Kumar Sahoo

2024 BATCH, MECHANICAL



Abhinandan Pattnaik

2024 BATCH,CSE

Home Automation

How does the term, "Artificially Intelligent Things" sound to you? Interesting,right!
Artificial Intelligence alone can do wonders. Concepts that were being termed as fictional not so long ago have now creeped into our everyday lives; be it a simple web search that can provide us with tremendous amount of information within a fraction of seconds, or a weather forecast, or a not-so-simple prediction of a disaster which saves thousands of lives. Ever imagined how Google Lens instantly returns a plethora of information on the provided image,or how Netflix recommends you movies or Spotify recommends songs based on your music taste? Well all we need to do is provide our systems with loads of data and it's then their job to analyze and process the data, and then come back to us with specific desired outputs. Nowadays it's fairly easy to get your hands on tremendous amounts of data; as, data is generated by us at all instants, even as we get by our regular day-to-day life, be it while browsing stuff or riding out on a vehicle to buy items from a shop. And this data is used in the creation of even more data.
Pheww...It's data data everywhere.Internet of Things on the other hand is a concept of making regularly used items smart enough so that they become capable of taking their own decisions and implementing them.It describes physical objects embedded with sensors having the ability to read data, compute and perform tasks in accordance with their inputs.Let's say that we enter the house and the light switches on by itself, then you see your fridge had realised that there were no more eggs left so it'd placed the order that has been delivered at your doorstep. This was an example of home automation. Similarly examples of some more IoT devices are wearable health monitors, biometric security scanners, smart fire-alarms, door locks, etc. The Internet of Things therefore involves billions of physical devices around the world that are now connected to the internet, all collecting and sharing data via wireless networks and taking required actions.
A home automation system is a set of devices and software that allow you to control and automate various aspects of your home, such as lighting, heating, and security. These systems can be controlled through a central hub or through a smartphone or tablet app. Some examples of home automation features include:

- Remotely controlling lights and appliances.
- Setting schedules for heating and cooling.
- Monitoring and controlling energy usage
- Automatically adjusting lighting based on occupancy or time of day.
- Security features like motion detection and remote surveillance.

Smart home hubs like Amazon Echo, Google Home, and Apple HomePod can also integrate with other devices in your home to create a seamless automation experience.
Home automation systems can be integrated with other technologies such as IoT (Internet of Things) and AI (Artificial Intelligence) to provide more advanced features such as voice control, predictive maintenance, and more.

ARTICLE BY:



Harshit Patro

2024 BATCH,IT

Wizer

Our platform features include AR technology that blends digital and three-dimensional components with an individual's perception of the real world. The present e-commerce applications allow users to view commodities in the form of images, but Wizer takes it a step further by allowing users to view products from all angles and directions with our 3D viewer. Users can also collect metacoins from the metaverse, view them in the account section, and avail amazing offers and discounts. Our search functionality helps users find relevant products by specifying keywords or phrases, and users can also share their experiences with a product or service and give it an overall star rating. Payment for products can be made through online methods such as Google Pay.

In the metaverse, Wizer offers personalized avatars, which help people express emotions online with much more detail than plain old texting. Users can customize their own avatars and chat and shop with others in a connected space. Our virtual try-on technology lets customers see how clothes fit on their avatar, allowing them to virtually “try on” clothing before purchasing, without even leaving their house. Users can also place any ad, poster, or banner they want to play, in the store and Wizer provides a gamified ancient virtual space for users to shop with a new experience in the land of fantasy - mystic birds drifting along the wind, in-motion billboards, something way beyond the old shopping style. The products kept on display have a default auto-rotate feature without any friction.

The users can also unlock metacoins through shopping, hunting and collecting them from the metaverse and access them from the account section of the app.

Wizer aims to make the shopping experience better. It's for people to connect virtually to shop in the exact same manner as in offline shopping. Keeping it user-friendly irrespective of any age difference, in short, providing the same platform where people meet using avatars. To visualize things in real-time with the use of VR & AR and even implement virtual try-on. It aims to help all Athe 3.8 billion e-commerce users to have a better experience while shopping.The platform is well-organized and has clean code. The data and operations are optimized to remove any unnecessary dependencies between the classes.

The code is self-documented and has high readability. The code uses the concept of modularity and abstraction to make use of reusability. The code is highly robust and reliable, making it perform well even under high server load. The UI is clean, and the UX is built after a good amount of research, making it customer-centric and user-focused.Please note that the metaverse is currently only available on local host and on the web, which will be redirected from the mobile application. The metaverse also only comes with global chat and currently has only one shop for testing purposes. Wizer is made using Decentraland SDK, Flutter, ExpressJS, NodeJS, designs were made in Figma, 3D modeling in Blender, and video edit in Premiere Pro and After Effects.

PROJECT BY:



Ashish Mohapatra

2024 BATCH,IT



Pratik Agarwal

2024 BATCH,CSE



Aadyasha Sahoo

2024 BATCH,CSE

Revolutionizing Alumni Engagement

INTRODUCING AIKYAM, OUR INNOVATIVE ALUMNI INTERACTION PLATFORM

As a team, we embarked on a mission to tackle a prevalent issue faced by educational institutions worldwide - the lack of effective alumni tracking and poor interaction between alumni and current students. We recognized the need for a centralized platform that would not only facilitate alumni networking but also bridge the gap between alumni and their respective alma maters. Today, we proudly present AIKYAM, a groundbreaking solution designed to revolutionize alumni engagement.

AIKYAM serves as a comprehensive platform where both alumni and students can register and connect with each other, fostering a strong and vibrant community. We understood the importance of providing every educational institution with a unified platform that increases alumni interaction, thus empowering both alumni and students, as well as supporting institutions in maintaining an up-to-date alumni database.

AIKYAM serves as a comprehensive platform where both alumni and students can register and connect with each other, fostering a strong and vibrant community. We understood the importance of providing every educational institution with a unified platform that increases alumni interaction, thus empowering both alumni and students, as well as supporting institutions in maintaining an up-to-date alumni database.

To bring our vision to life, we leveraged the power of the MERN Stack, which comprises MongoDB, Express JS, React JS, and Node JS. By utilizing this cutting-edge technology stack, we developed a web portal that seamlessly integrates frontend and backend functionalities, ensuring a smooth and efficient user experience.

For the frontend development, we chose React, coupled with the Material UI framework. React's versatility and flexibility allowed us to create a visually appealing and user-friendly interface. Material UI, with its extensive component library, provided us with responsive design elements, guaranteeing a seamless experience across devices. To add a touch of personalization, we also incorporated basic HTML and CSS.

On the backend, we utilized MongoDB as our database of choice. Its simplicity and scalability made it an ideal solution for storing and retrieving data efficiently. Additionally, Firebase authentication enabled secure and reliable user authentication, ensuring that only authorized individuals could access the platform.

Now, let's delve into the rich array of features offered by AIKYAM:

1. Job Opportunities: AIKYAM serves as a valuable resource for students, as alumni can post job opportunities relevant to their fields of expertise. This feature empowers students to explore career prospects and establish professional connections.
2. Event Organization: Users can stay informed about the various events organized by their respective institutions. This feature promotes engagement between alumni and students by providing a platform for them to collaborate and participate in enriching activities.
3. Event Organization: Users can stay

1. informed about the various events organized by their respective institutions. This feature promotes engagement between alumni and students by providing a platform for them to collaborate and participate in enriching activities.
2. Field-Based Alumni Search: AIKYAM allows students to search for alumni based on specific fields of interest. This feature encourages networking within specialized domains, fostering mentorship opportunities and knowledge exchange.
3. Gallery Page: Our platform hosts a dedicated gallery page where students and alumni can reminisce by browsing through images capturing memorable moments from their educational journey.
4. Yearly Reunion: To promote a sense of belonging and togetherness, AIKYAM features a dedicated reunion page. This section provides details about the annual reunion event held at the institution, facilitating alumni involvement and encouraging them to reconnect with their alma mater.
5. Newsletter Subscription: AIKYAM offers a newsletter section where students can subscribe using their email addresses. This feature ensures that students receive regular updates from alumni, fostering a sense of community and enabling knowledge-sharing on a weekly basis.

The impact of AIKYAM can be measured by the number of alumni and students actively utilizing the platform and the extent to which it helps them remain connected to their educational institutions even after graduation. By creating a user-friendly and intuitive platform, we aimed to streamline alumni interaction and bridge the communication gap between alumni, students, and institutions.

Thus, AIKYAM represents a significant step forward in transforming alumni engagement. By leveraging the power of technology, we have successfully developed a comprehensive platform that connects alumni and students, facilitating networking, mentorship, and career opportunities. We are excited to witness the positive impact AIKYAM will have on fostering lifelong relationships within the academic community and empowering future generations of alumni and students, when implemented properly!

PROJECT BY:



Pritam Kumar Dash

2024 BATCH,CSE



Anshuman Tripathy

2024 BATCH,E&I



Alok Ranjan Joshi

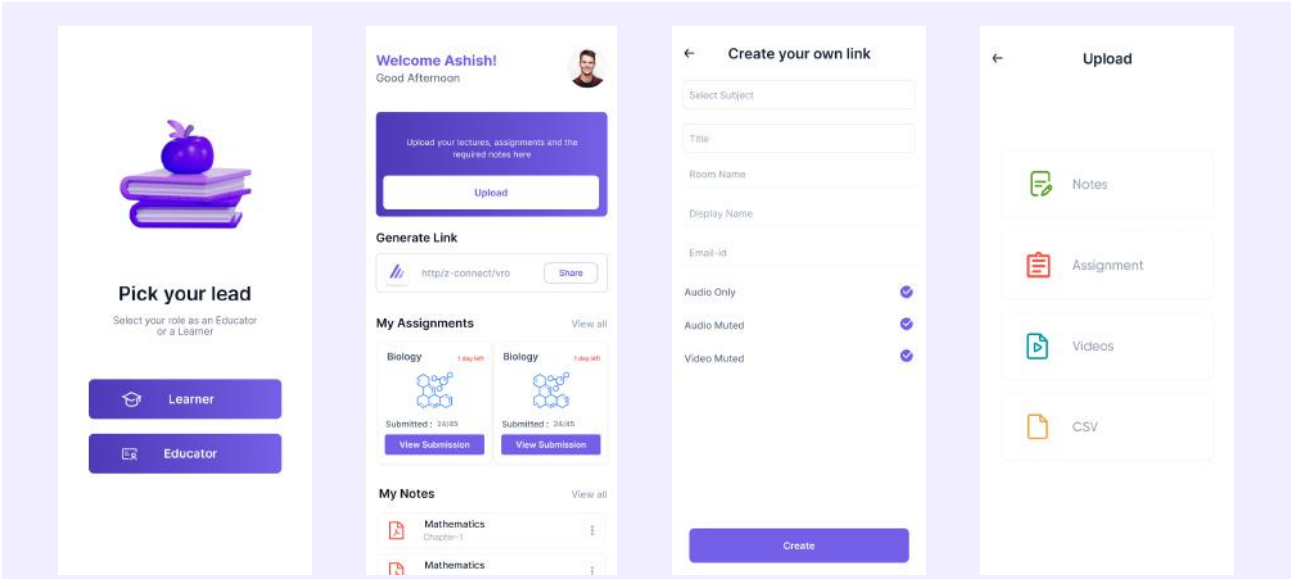
2024 BATCH,CSE



Aatish Kumar Moharana

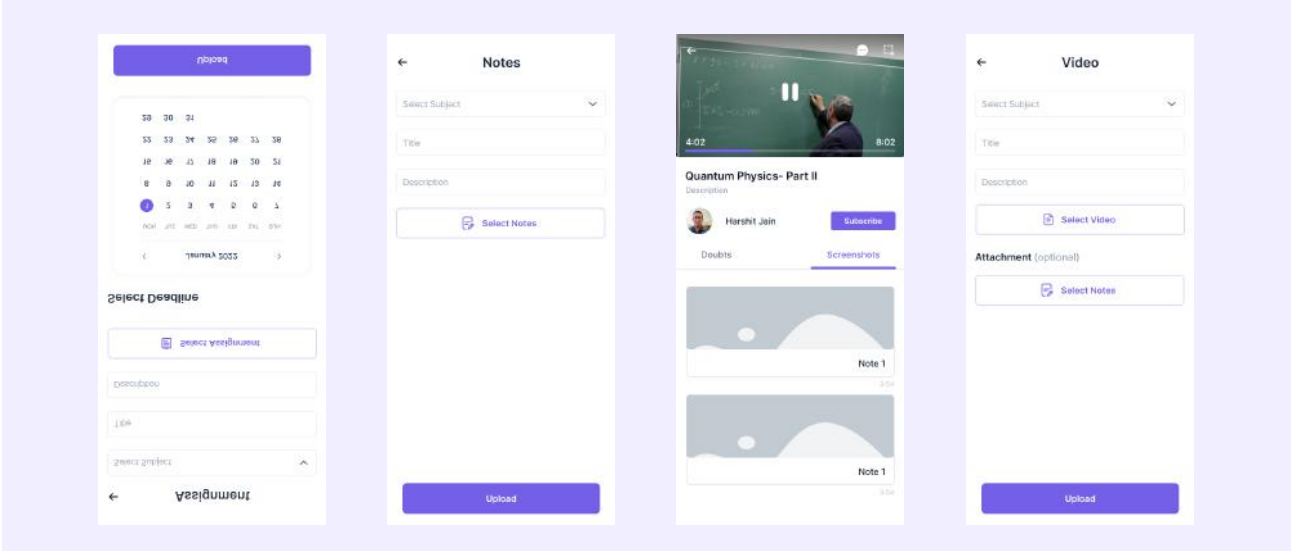
2024 BATCH,CSE

Wizdom



Wizdom is a new mobile application that aims to make the journey of learning and education more straightforward and user-friendly. The app is specifically designed to help school and college tutors, as well as all educators who are willing to impart knowledge.

With the online education market in India worth $247 million USD in 2016 and expected to reach approximately $1.96 billion USD by 2024, it's clear that the majority of education is being transmitted online and is proving to be efficient. However, we believe that we can make this process of gaining education even easier by addressing some of the complications faced by both tutors and students during online education.One of the features of Wizdom is the ability for students to ask questions at a particular time stamp, where the teacher will be notified and provide a solution.If any students cross through that



time stamp later, they will be shown the doubt as well as the solution provided by the teacher. This feature eliminates the need for students to take screenshots of their online lectures and then struggle to find them later.
The problem we tried to solve: Traditional waiting rooms in hospitals that require patients to touch shared surfaces and breathe shared air are beyond uncomfortable—they can be unsafe. It is not only inconvenient for the patients to stand in long queues but also the crowd proves to be a breeding ground for germs and potential infections. Especially during the times of COVID, enabling social distancing is the need of the hour.
where the teacher will be notified and provide a solution.If any students cross through that time stamp later, they will be shown the doubt as well as the solution provided by the teacher. This feature eliminates the need for students to take screenshots of their online lectures and then struggle to find them later.
Wizdom also uses Firebase Cloud Messaging to remind students about upcoming submissions and deadlines. The educator can upload an assignment on their profile and each student will be notified accordingly and reminded once before the deadline. The user interface of Wizdom is designed to be friendly and easy to operate, so users will not face any issues while using the application. This app was developed using Flutter and Firebase.
Wizdom also includes a centralized database to help students find related topics and videos with ease. They can comfortably find the interconnected chapters under the related section, making it easy to find what they need. Additionally, the app includes a feature where students will be notified the day before a deadline to make sure they submit their work on time.
The app also includes a feature where the educator can maintain a list of students along with their name and registration number. Only students on this list will be able to access the class, making it easy for educators to keep track of who is attending their class. The educator can also import a CSV file with the names, email IDs, registration numbers, and other required details of the students.

PROJECT BY:



Ashish Mohapatra
2024 BATCH,IT



Pratik Agarwal
2024 BATCH,CSE



Aadyasha Sahoo
2024 BATCH,CSE

Game Development and Design

“And Games this is how I met your mother” said Technology while Imagination stands behind him smiling sheepishly.

The Gaming industry has become one of the most exciting million-dollar industry in tech. Game development is both an art and science and has the capability to overlap multiple industries such as automobile development, simulations, meta-verse and so on. Although making games is challenging and way too harder than just sitting and playing games or streaming live on YouTube, according to a survey in 2022, the game-making industry is the second largest in generating revenue worldwide!

It may seem intriguing to build games but oh how satisfying it would be to bring the characters in your mind to existence and create your own world with all the graphics and visualisation! So coming out of the Godly vibe, let’s focus on how can one ensure a flourishing career in the game-making industry? The approach is simple. Besides having a strong technical foundation, one has to have a quality to craft the game in such a way that it is visually appealing and at the same time it is available to all gaming enthusiasts out there. The key to achieve success from crafting games is to make ensure that the games become an integral part of life, i.e., they become the way of life.

Game making takes a lot of time and the duration can range from months to years. However, with sheer patience and perseverance one can build the games that can revolutionise the industry in the coming years.

Here at Zairza, along with a group of ambitious students, we design games and by working in teams, we develop the game in a procedural way by communicating with each other.Procedural development is achieved when a large team is divided in sub-teams and each sub-team takes on a piece of the actual task. Inter-communication becomes very important to put in the pieces without leaving gaps. Along with plenty of gameplay mechanics and eye-catching visuals, the team is all set to develop a game that has the capability to become an actual AAA game.

Here let’s look at the following games

‘The Hell You Don’t Belong To’.



Imagine yourself waking up in a torture room-cage, to where you have time-travelled and as an add-on to the star-crossed fate you don't have the slightest idea about the hellish surprises waiting for you in the dungeon.Scary! The game is all about this, but with graphics, animations, and sound it can give you virtual chills. So how does this game become interesting with such simplicity?

The mechanics are simple if you have the skills to know which objects to pick and drop.It's the way the levels are designed and the puzzles are created and most important aspect is its visuals! As our brains are trained to believe that no matter how things are simple, if they are not easily achievable by us they tend to become complicated. And here we are!! Complex things mean happening life: Star Plus Zindagi. Jokes apart, this is the criteria that makes the game indulging- The Design. When levels look simple but are pretty tough to complete, it generates a feeling of not giving up easily and the gaming continues. This is the most crucial thing game-makers keep in mind while building a game. This is one the most important aspect of the game because it forces the players to look around and explore the game which in turn increases the possibility to introduce side quests, which engage the player more!

Let's take a look at another game 'Return of the Light-bringer'. How interesting can a birthmark make your life? If you are as unlucky as me for not having a life changing birthmark well this game can suffice the empty feeling.

The backstory goes as such-You (character of the game) have a strange birthmark and your life was going smoothly, until one day, you decide to visit a local community. Eventually you get bored and thought it would be a good idea to explore the place. Suddenly you see a crux figure atop a building amidst the woods. Since, you felt attached to it in some way, you decided to go into the building only to find out that it is a demolished church. Through a series of unexpected events and unknown past, you are now being chased down by unidentifiable people who claim you to be "The Cursed Child". Life is now no longer normal for you. Dark secrets reveal at every stage of your existence. The overcoming unforeseen challenges have become the way of life.

The game is story-rich and action packed where the player not only solves puzzles strategically, but also engages in battles by carefully utilizing their arsenal. The most important component of this game is its open-world nature. This means that players can engage in any quest they wish to, while keeping the main storyline constant. This gives the feeling of "Living in the game" which is essential to make a player to stick to the game! Building games is all about art. The developer imagines and creates its own world. With the designs he keeps the gamers indulged in his world. The game gives him the power to control the emotions of the player. A developer follows the line well-

"All the world's a stage, and all the men and women merely players"

ARTICLE AND PROJECT BY:



Sameer Dash

2024 BATCH,IT

The Spotify App

(CHALLENGES AND MODIFYING IDEAS)

In today's digital age, music streaming platforms have become an integral part of our daily lives. Spotify Essential, known for its seamless music streaming experience, has opportunities to further enhance its offering by introducing extra features. This article explores the significance of incorporating additional functionalities into Spotify Essential, highlighting how these features can elevate user experience, personalized recommendations, improve playlist creation, and foster a stronger sense of community among music enthusiasts.

1. Less advertisements:

Just a general piece of advice. This is because people don't like to get interrupted while doing their work, and some of them don't even like to pay for the premium so if we could just try to minimize a little amount of advertisements.

Research says, Spotify has substantial brand loyalty, and I believe their retention rates and market share will remain high unless competitors such as Google and Apple integrate their services for free onto their devices and hide the cost in the hardware price.

Conclusion:

Thus, it would be better if it could reduce the number of ads and could get a 2nd income source from the next 2 points.

2. Enhancing the Fan Experience:

Live Show Notifications and Direct Booking Integration for Artists' Apps

In today's digital era, technology has revolutionized the way we connect with our favorite artists. With the advent of mobile applications, fans can now stay informed about their preferred artists' upcoming live shows and conveniently book tickets directly through the app. We explore the concept of live show notifications and integrated booking features, highlighting how these innovations can enhance the fan experience and strengthen the bond between artists and their audience.

Real-Time Live Show Notifications:

Imagine being able to receive instant notifications about your favorite artist's live performances. By integrating live show notifications into spotify, fans can stay up to date with concert announcements, tour dates, and ticket availability. These real-time notifications ensure that fans never miss an opportunity to see their beloved artists perform, fostering a sense of excitement and anticipation.

Personalized Recommendations:

By analyzing fans' preferences and listening history, Spotify can offer personalized recommendations for upcoming shows. This feature enables fans to discover new artists, ensuring a diverse and engaging concert experience. Whether it's suggesting a similar artist or recommending a local concert, personalized recommendations help fans explore and broaden their musical horizons.

Seamless Ticket Booking:

The integration of a ticket booking feature within Spotify, streamlines the ticket purchase process, eliminating the need to navigate through multiple platforms. With just a few taps on their mobile devices, fans can secure their seats directly through the app. This convenience saves time and ensures a hassle-free experience, increasing overall customer satisfaction.

Enhanced Fan Engagement:

Spotify can provide interactive features to enhance fan engagement, such as live chat during concerts, exclusive meet-and-greet

opportunities, and virtual merchandise stores. These interactive elements create a unique and immersive experience, making fans feel more involved and valued.

Conclusion:

Live show notifications and integrated booking features within artist apps are transforming the way fans engage with their favorite artists. By offering real-time notifications, personalized recommendations, and seamless ticket booking, these innovations enhance a user's spotify experience, foster a sense of exclusivity, and strengthen the artist-fan relationship.

3. Empowering Introverted Voices: Creating a Community for Astonishing Talents

In today's digital world, technology has the potential to empower introverted individuals by providing a platform for self-expression and community engagement. We explore how features can be implemented to amplify introverted voices, utilizing Spotify's app platform to foster a vibrant community for astonishing talents.

Personalized Playlists: The app can curate personalized playlists based on users' unique tastes, moods, and introverted inclinations. This feature allows introverted individuals to discover new music, express emotions, and connect with like-minded individuals.

Collaborative Music Projects: The app can facilitate virtual collaborations among introverted musicians, enabling them to create and share music regardless of geographical boundaries. Leveraging Spotify's app platform, users can seamlessly collaborate on tracks and collectively produce astonishing music.

Virtual Concerts and Performances: By hosting virtual concerts and performances, the app provides a platform for introverted musicians to showcase their talents to a global audience. Spotify's app platform enables live streaming and real-time interaction, fostering a sense of community and appreciation.

Discussion Forums and Support Groups: The app can include discussion forums and support groups for introverted individuals to connect, share experiences, and seek guidance from peers. These spaces create a supportive environment that encourages personal growth and empowerment.

Mentorship Programs: Mentorship programs within the app can connect established introverted artists with aspiring talents. Leveraging Spotify's app platform, these programs offer valuable insights, feedback, and career guidance, helping introverts navigate the music industry.

Conclusion: Features can be implemented leveraging Spotify's platform that can create a thriving community for introverted talents. By providing personalized playlists, facilitating collaborative projects, hosting virtual performances, fostering discussion forums, and offering mentorship programs, these features empower introverted individuals to showcase their abilities, break barriers, and inspire others. Let's embrace technology to amplify introverted voices and celebrate the astonishing talents within this community.

ARTICLE BY:



Jayant Agarwal

2025 BATCH,CSE

DESIGN

"EVERY GREAT DESIGN BEGINS WITH
AN EVEN GREATER STORY."



Iconography

A FUN PROJECT BY TEAM HAWKORBS



A project that delves into the realm of Visual Design, this iconography project characterises college life by creating an icons relating to it.
This project was created in an effort to hone our existing skills and introduce us to aesthetics and other visually appealing aspects of design and its nuances.

The three day endeavour resulted in a series of 49 icons that illustrated the different parts of college life, from working hard to get a job to having a good time celebrating tiny victories. The design process started with extensive research and exploration of the different types of icons ranging from fill type to stroke type and others.
We realized how imperative icons are to convey messages and information through visual representations. Learning to work with grids and spacing all the while making it a team collaboration was a major takeaway from this fun activity.
The icons are kept simple, approachable and easy to recreate. There is an attempt to maintain consistency in terms of stroke width, curvature and color palette etc. Due to its scalability and duotone color scheme, the icon pack is incredibly flexible and may be utilized for a variety of purposes.

PROJECT BY:



Vaishnav Kumar Tayal
2025 BATCH,IT



Abhinaba Dash
2025 BATCH,IT



Sushree Pallabi Nayak
2025 BATCH,IT



Deeksha Paribhasha Nayak
2025 BATCH,E&I



Shruti Lenka
2025 BATCH,E&I



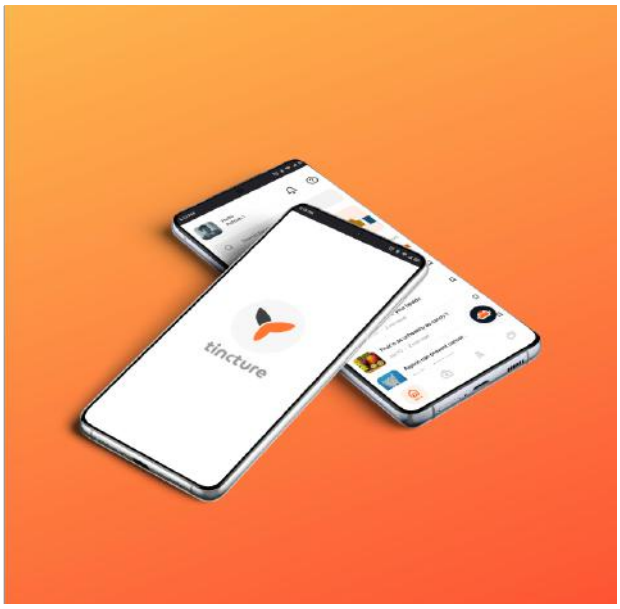
Subhasmita Pradhan
2024 BATCH,CSE



Satyaprakash Ray
2023 BATCH,CSE

TINCTURE

TINCTURE GOT ALL YOUR MYTHS COVERED!



The aim is to create a digital platform that serves as a one-stop solution for countering misinformation and myths in the health sector. The platform aims to simplify health and medicine-related issues by providing accurate information about drugs and diagnosing people with minor health issues or symptoms.

Features:-

- Myths & Facts: A digital platform that enables people to learn about the current situation of growing infodemics by providing them with quick healthcare and accurate information about medicines and facts.
- AI-Based Self-Diagnosis: Provide detailed information about any medicine, including dosage, side effects, and interactions with patients of a specific age group or patients with special conditions.
- Diagnosis with an AI-Based Self-Diagnosis System and Online Diagnosis with a Specialized Doctor: When a person starts feeling ill and sees minor symptoms, it is an ideal and safe option to diagnose themselves with a digital AI-backed chatbot. If the user is unsatisfied even after diagnosing through the chatbot, they can connect to a specialized doctor online through our platform.

PROJECT BY:



Vaishnav Kumar Tayal

2025 BATCH,IT



Abhinaba Dash

2025 BATCH,IT



Sushree Pallabi Nayak

2025 BATCH,IT



Deeksha Paribhasha Nayak

2025 BATCH,E&I



Shruti Lenka

2025 BATCH,E&I

The Nine Avatars

NAVRATRI 2022



Navdurga which means Nine Durga is the manifestation of Durga in nine different forms. The concept of Navdurga originates from Goddess Parvati. Conceptually Navdurga is the life phase of Goddess Parvati who is considered supreme power among all Goddesses.

This year we decided to present the power of feminine with rough sketches portraying the raw form of expressions, distinct postures and signified weapons of each goddess representing the individuality with perfection.

Shailaputri :The mount of Goddess Shailputri is bull and because of that she is also known as Vrisharudh. Goddess Shailputri is depicted with two hands. She carries Trishul in the right hand and the lotus flower in the left hand.
She is also known as Hemavati and Parvati. Due to her importance among all nine forms Goddess Shailputri is worshipped on the first day of Navratri. Similar to her previous birth as Goddess Sati, Goddess Shailputri got married to Lord Shiva.

Brahmacharini : Goddess Brahmacharini is depicted as walking on the bare feet. She has two hands and She carries Jap Mala in the right hand and Kamandal in the left hand.
Goddess Brahmacharini did severe penance to get Lord Shiva as her husband. She performed hard austerity and due to which She was called Brahmacharini.
It is stated that during her penance to get Lord Shiva as her husband She spent 1000 years on the diet of flowers and fruits and another 100 years on the diet on leafy vegetables while sleeping on the floor.

Chandraghanta : Goddess Chandraghanta mounts on the tigress. She wears the semi-circular moon (Chandra) on her forehead. The half-moon on her forehead looks like the bell (Ghanta) and because of that she is known as Chandra-Ghanta. She is depicted with ten hands. Goddess Chandraghanta carries Trishul, Gada, Sword and Kamandal in her four left

hands and keeps the fifth left hand in Varada Mudra. She carries lotus flower, Arrow, Dhanush and Japa Mala in her four right hands and keeps the fifth right hand in Abhaya Mudra.

Kushmanda : Goddess Siddhidatri rides on the lioness. She is depicted with eight hands. She has Kamandal, Dhanush, Bada and Kamal in the right hands and Amrit Kalash, Jap Mala, Gada and Chakra in the left hands in that order. Goddess Kushmanda has eight hands and because of that She is also known as Ashtabhuja Devi. It is believed that all the power to bestow Siddhis and Niddhis are located in her Jap Mala.It is stated that She created the whole universe, which is called Brahmanda in Sanskrit, by just flashing little bit of her smile.

Skandamata : Goddess Skandamata mounts on the ferocious lion. She carries baby Murugan in her lap. Lord Murugan is also known as Kartikeya and brother of Lord







Ganesha. Goddess Skandamata is depicted with four hands. She carries lotus flowers in her upper two hands. She holds baby Murugan in one of her right hand and keeps the other right hand in Abhaya Mudra. She sits on lotus flower and because of that Skandamata is also known as Goddess Padmasana.

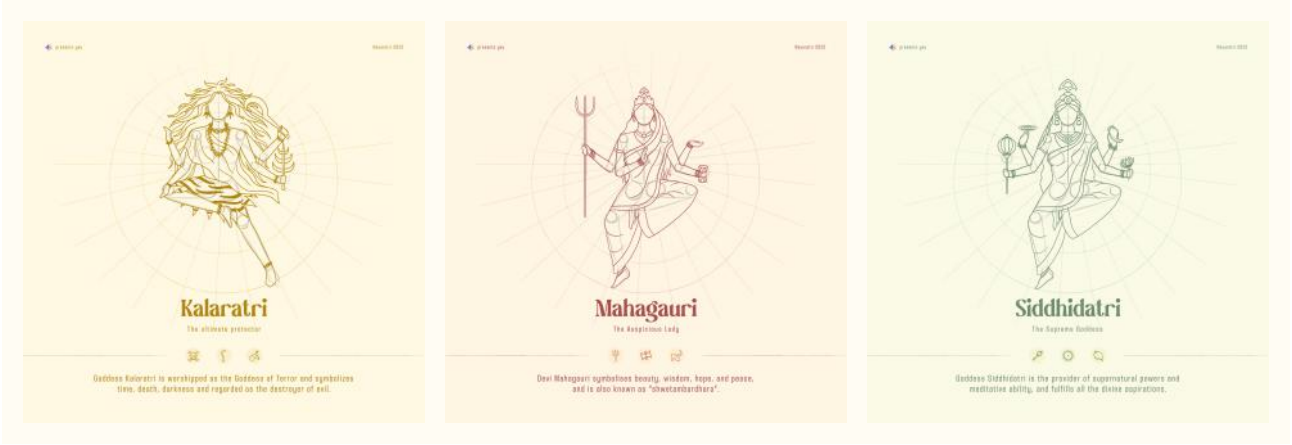
Katyayni : Goddess Katyayani rides on the magnificent lion and depicted with four hands. Goddess Katyayani carries lotus flower and sword in her left hands and keeps her right hands in Abhaya and Varada Mudras.

Kaalratri : Goddess Kalaratri complexion is dark black and She rides on a donkey. She is depicted with four hands. Her right hands are in Abhaya and Varada Mudra and She carries sword and the deadly iron hook in her left hands.

Mahagauri : The mount of Goddess Mahagauri as well as Goddess Shailputri is bull and because of that she is also known as Vrisharudha. Goddess Mahagauri is depicted with four hands. She carries Trishul in one right hand and keeps the second right hand in Abhaya Mudra. She adorns Damaru in the one left hand and keeps the second left hand in Chandra-Ghanta. She is depicted with ten hands. Goddess Chandraghanta carries Trishul, Gada, Sword and Kamandal in her four left

hands and keeps the fifth left hand in Varada Mudra.

Siddidatri : Goddess Siddhidatri sits on Kamal and rides on the lion. She is depicted with four hands. She has Gada in the one right hand, Chakra in the other right hand, lotus flower in the one left hand and Shankh in the other left hand.



PROJECT BY:



Satya Prakash Ray

2023 BATCH, CSE



Subhasmita Pradhan

2024 BATCH, CSE



Tamanna Swain

2024 BATCH, E&I



Sangyashree Pradhan

2024 BATCH, BIOTECH



Harsh Kumar

2025 BATCH, CSE



Jayant Agarwal

2025 BATCH, CSE



Shruti Lenka

2025 BATCH, E&I



Jyoti Mishra

2025 BATCH, E&I

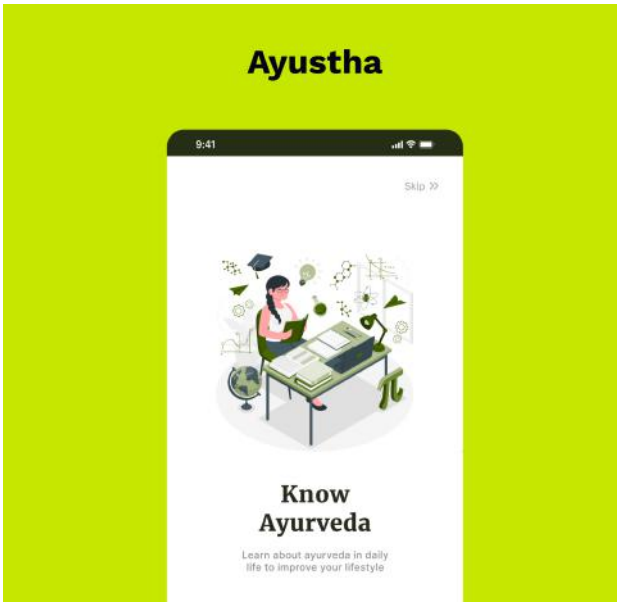


Kalinga Khatua

2025 BATCH,CSE

Ayustha

A UI/UX PROJECT FOR HEALING WITH AYURVEDA



Ayustha is an innovative UI/UX project designed to address the after-effects of the COVID-19 pandemic using the principles of Ayurveda, an ancient holistic healing system from India. This application aims to provide users with valuable information about the ingredients used in their daily lives and offers remedies for various diseases and health issues.

Key Features of Ayustha:

1. **Ingredient Knowledge:** Ayustha enables users to explore and understand the ingredients present in their daily lives. Whether it's the food they consume, the products they use, or the substances they come into contact with, Ayustha provides detailed information about the composition and potential benefits or drawbacks of these ingredients. This knowledge helps users make informed choices about their lifestyle and encourages healthier alternatives.

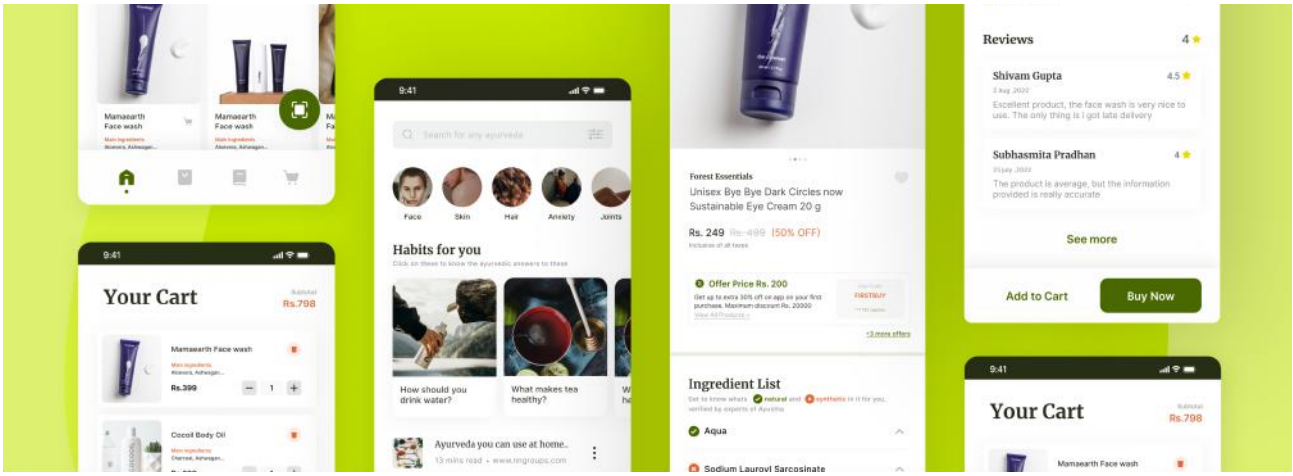
2. **Disease Remedies:** Ayustha acts as a comprehensive guide for managing various diseases and health issues through Ayurvedic remedies. Users can search for specific ailments, such as respiratory problems, fatigue, stress, or digestive disorders, and Ayustha provides natural remedies and recommendations based on Ayurvedic principles. These remedies may include herbal formulations, dietary modifications, lifestyle changes, and traditional practices to promote holistic healing.

3. **Personalized Recommendations:** By leveraging user input and data, Ayustha offers personalized recommendations tailored to individual needs. Users can provide information about their medical history, symptoms, and preferences, allowing Ayustha to generate personalized suggestions and remedies. This feature helps users find solutions that align with their specific health conditions and goals.

4. **User-Friendly Interface:** Ayustha focuses on creating a user-friendly experience through its intuitive UI/UX design. The application employs modern design principles to ensure ease of use and seamless navigation. Clear categorization, visually appealing graphics, and interactive elements enhance the overall user experience, making it simple for users to explore the vast knowledge and resources provided by Ayustha.

5. **Integration of Ayurvedic Principles:** Ayustha draws upon the rich knowledge of Ayurveda, an ancient Indian system of medicine, which emphasizes a holistic approach to health and well-being. The application incorporates Ayurvedic concepts such as the three doshas (Vata, Pitta, and Kapha), the importance of

balance of everything we do or consider in our day to day life, and the use of natural remedies and to promote self-healing of human body. By combining this traditional wisdom with modern technology, Ayustha offers a unique platform for users to benefit from Ayurvedic principles and products in their daily lives.



PROJECT BY:



Satya Prakash Ray

2023 BATCH, CSE



Shuvam Kumar Panda

2023 BATCH,IT



Pratik Biswal

2023 BATCH, MECHANICAL



Subhasmita Pradhan

2024 BATCH, CSE



Sangyashree Pradhan

2024 BATCH, BIOTECH

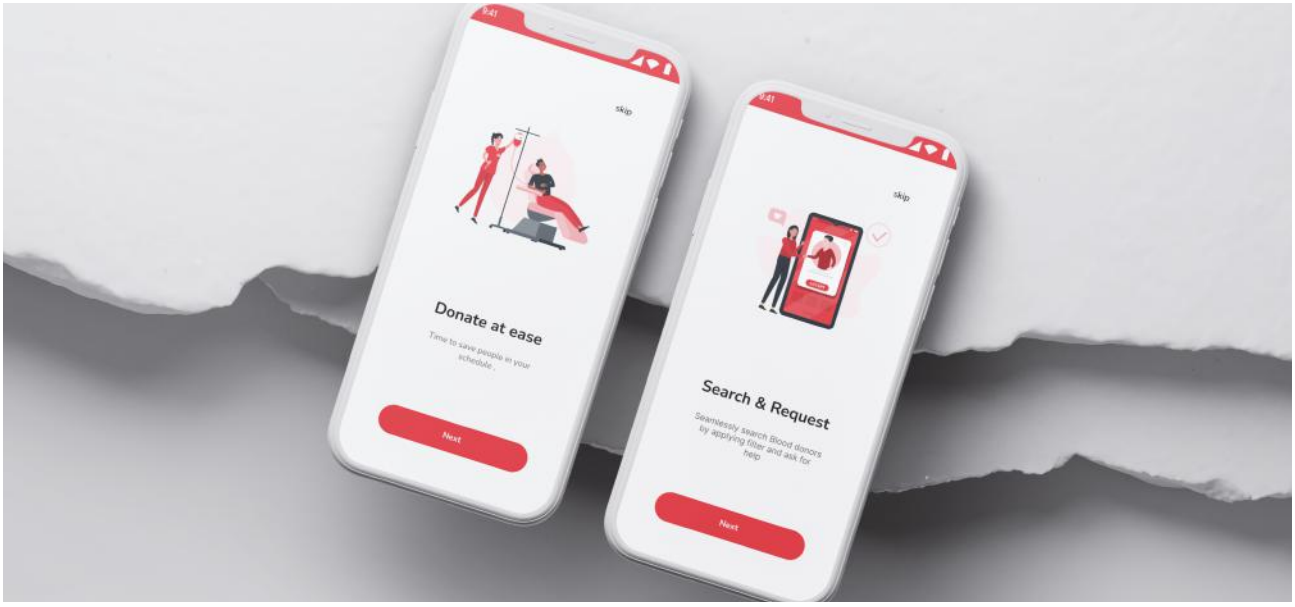


Adyasha Sahoo

2024 BATCH, CSE

Rudhira

UMO DESINGX SOCIAL 22 SPECIAL JURY AWARD WINNERS



In a world driven by technology and innovation, five brilliant minds have come together to create a groundbreaking solution to a crucial global issue. The team's exceptional project, a blood donation app, has not only caught the attention of experts but also secured them the prestigious Special Jury Award at UMO DesingX Social 22, a renowned global design challenge. This remarkable achievement marks a significant milestone in their journey towards making a positive impact on society. The Inspiration Behind the App: while re-centering our idea on the theme i.e. Designing for crisis, we came across a common major issue faced by most people. We discovered that “India Today Faces shortage of 10% relative to its blood requirement ”. Despite its large and mainly young population India faces extreme shortage of blood in Hospitals as many remain wary of donating blood mainly unfounded fears ,even though many hospitals and civil society groups has been volunteering it for years. So we decided to revolutionize the blood donation.

Project Overview

Rudhira is a structured, innovative and well-defined mobile application platform for quick supply of blood during emergency times. The blood will be procured from nearby donors and first-time users (people who would like to donate blood) as well as from nearby blood banks.

Features of the app:

1. The experience for the users will be minimal, seamless and streamlined for easier procedures. The design and information architecture will make the interface user friendly and easy to navigate.

2. Multilingual - We are offering this mHealth App in 22 official languages in India to respect regional sensibilities, better communication and encourage more donors to participate.

3. The mhealth app uses Global Positioning Systems (GPS) for precise tracking and identifying potential donors.

4. The system provides factual data to burst myths surrounding blood donationsin order to eradicate fear among the youths.

5. The system allows donor to track their donated blood, thus giving them a sense of satisfaction and servitude to man kind.It also helps in scheduling the appointment.

6. The Special Jury Award bestowed upon the team at UMO DesingX Social23 is a testament to their unwavering commitment to making a difference. With their innovative solution, they have not only transformed the way we approach blood donation but also illuminated the immense potential of design in solving pressing social challenges.

PROJECT BY:



Harsh Kumar

2025 BATCH, CSE



Jayant Agarwal

2025 BATCH, CSE



Jyoti Mishra

2025 BATCH, E&I



Ayanesh Dash

2025 BATCH, E&I



Siddhart Das

2025 BATCH, CIVIL

Product design workshop



The most recent product design workshop embarks one of such beautiful moments where students of our university collaborated to get in-depth within the field.

Design workshops like this push the learning forward in the most well-organized manner and with this opportunity in hand we explored different design principles, techniques, and tools while working on hands on projects.

It in a way enabled us as students to understand and comprehend different arcs of product packaging in the most straight-forward manner.

The main theme and focus were on product designs that really make up the industry standards while keeping up with an aesthetic that fits a persona of a brand.

They even allotted us a timeframe under which we accomplish the task, which added up as a real challenge and somehow, it worked for us to think creatively enhanced.

The workshop brought 1st year and 2nd year undergrads together which even added a disciplinary approach to the process.

While working hands on and prototyping played a crucial role in the better understanding of the feasibility and functionality of our designs.

Iteration of different designs and combining them together to create something out of the blue was a very WOW! as we set on further by designing different mock-ups for our respective themes from premium segment product packaging to packaging of daily-go's.

It was something very intuitive that was coming into fruition all within the room of creatives who're trying to innovate every day.

The workshop setting lead us better with a common ground to push forward the way we think and perceive designing and in the end, we even got reviews of our designs after getting it printed in physical form as we discussed ways to make things work nicely in our designs even if they somehow go off-the-grid sometimes.

HARDWARE

"HARDWARE WORKS BEST WHEN IT MATTERS THE LEAST."



Autonomous Drones!?

So here’s the thing. If you haven’t been living under a rock and have been to our university, you know almost everyone’s making drones. And, that got us thinking, can we make something unique, something that no one’s tried yet? And that’s what we did, we made an autonomous drone!

But why an automated drone? Many of you have seen quadcopters, but is it really cool to pilot them with a remote control? Especially when there's a way to make the drone bring you stuff, chase your friends, perform aerobatics... completely on its own!

Drones, also known as Unmanned Aerial Vehicles (UAV’s), have become all the rage in recent years. These high-tech devices are equipped with a variety of features and capabilities, making them versatile tools for a wide range of applications. From capturing stunning aerial footage to delivering packages and performing search and rescue operations, drones are proving to be incredibly useful and let's face it, bloody brilliant. In this article, we'll explore one of the coolest ways that drones can be automated. From recreational use to professional applications, drones are revolutionizing the way we live and work. So, let's take off and discover the endless possibilities that drones, more specifically quadcopters, offer, just don't fly them near any airports, unless you fancy a visit from the police!

Quadcopters, also known as quadrotors, are a specific type of drone that are lifted and propelled by four rotors. They are known for their stability and maneuverability, which makes them great for a wide range of applications.

But here's the thing: quadcopters, these nimble bastards, are never willing to do what they're told. It's a lot more fun for them either to refuse to fly, or to fly like hell, crashing into the first chandelier they can find (and they're pretty good at it, trust me).

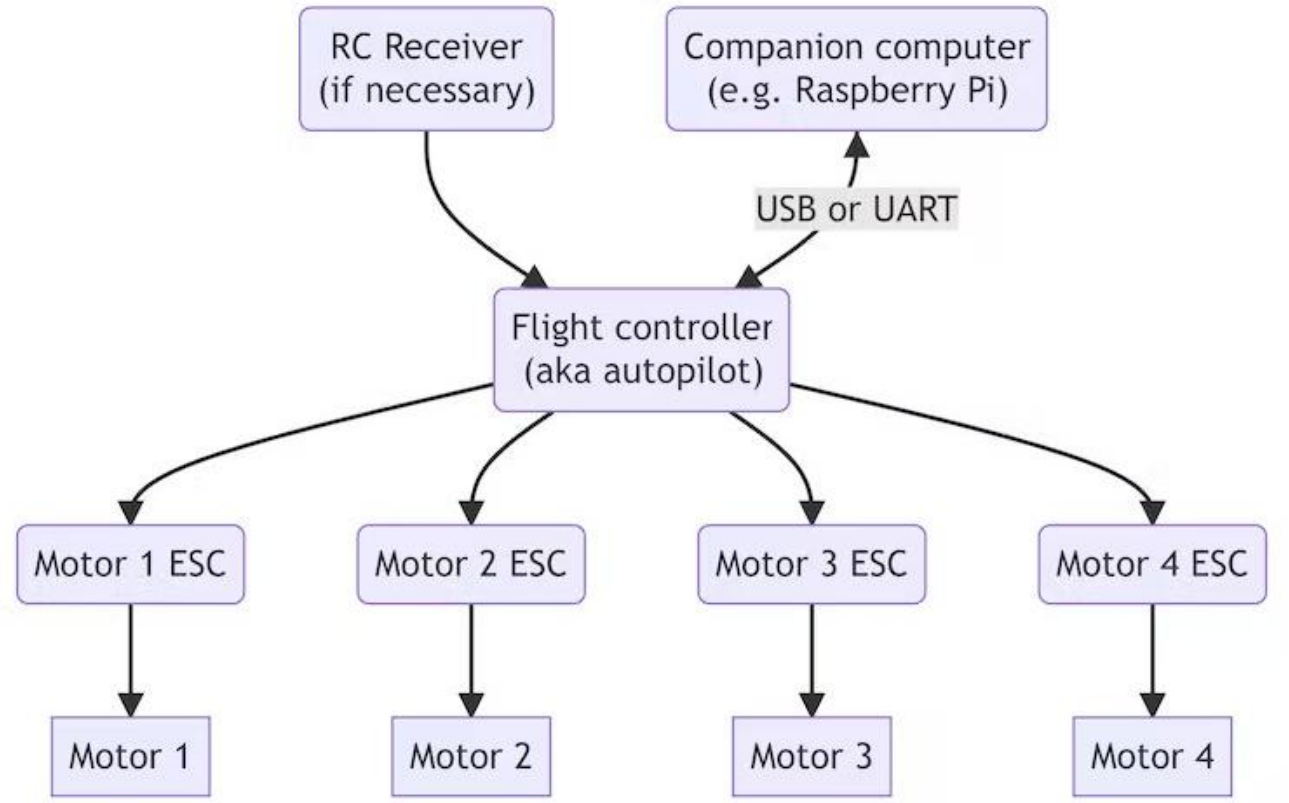
Autonomous vehicles, as any advanced robots, are incredibly hard to do from scratch because of complexity of the hardware and its interactions with the environment.

For our project, on the hardware side of things, the most important components we made use of are a drone frame with a Raspberry Pi 4 on board — and a PX4-compatible flight controller.

But hey, what's a flight controller? Keeping it simple, a quadcopter consists of a frame, a battery, a flight controller, motors and their ESCs (electronic speed controllers). A flight controller is a device equipped with a microcontroller (like Arduino) and a bunch of sensors: accelerometers, angular rate sensors, magnetometers and barometers etc. Using this sensor information and control inputs (commands from the remote control or onboard computer), the flight controller calculates required motor commands and passes them to ESCs, which control the drone's motors.

PX4 is a popular open source autopilot firmware, supported by Dronecode Foundation, a Linux Foundation Collaborative Project. Its architecture is perfect for autonomous flights, controlled by a companion computer instead of a remote, and allows you to extend its functionality easily.

We use a Pixhawk PX4 Flight controller, and integrate it with the Raspberry Pi 4 microprocessor so that we can then use it to program the drone however we want. 2 of the main sensors used are the VL Laser range finder, and a 5MP camera module, both attached to the underside of the drone. To integrate these to make an autonomous drone



we make use of ROS and Python.

Our idea makes extensive use of Aruco Markers. Aruco markers are a type of visual fiducial system, which are small square markers that can be printed and placed on objects in the real world. Each marker is encoded with a unique id, which can be used to identify the marker and differentiate it from other markers. They are designed to be easily detected by computer vision algorithms, and can be used for a variety of applications, including relative pose estimation. Relative pose estimation is the process of determining the position and orientation of one object relative to another. Aruco markers can be used to estimate the relative pose of a camera or robot relative to a marker, using the marker's unique id. This is useful for applications such as augmented reality, robot localization, and object tracking.

In our case, we use it for localisation and path planning. It is attached to objects in our path and to both the launch and landing zones. The drone starts by flying to a height of 1 meter from the launch point. The camera takes in its surroundings and searches for Aruco markers. As soon as it detects an Aruco marker, using the data of relative pose, it navigates itself to hover above the marker. If the object is required to be carried back, the drone picks up the object with the help of Electromagnets and then again goes up to a comfortable height and searches for the landing/drop zone's Aruco marker to navigate to it. In this way, Aruco markers with certain ids are used to move the drone about.

Building drones can be a fun and rewarding hobby, and it's an exciting way to learn about technology and engineering. With the rise of drones in various fields, it's a great time to start experimenting and learning about this technology. Building your own drone can be a great project to work on with friends and family, and it's also a great way to learn new skills and push your creativity.

At the same time, it's important to remember that building a drone is not an easy task and it's normal to face some challenges along the



way. It's important not to get discouraged if at first it isn't successful. Building drones is a process of trial and error, it takes patience and persistence to get the hang of it. Remember, "Rome wasn't built in a day", and neither was your drone.

Whether you're a beginner or an experienced builder, there's always something new to learn and discover when building drones. So, why not give it a try? You might just surprise yourself with what you can accomplish!

PROJECT BY:



Ashutosh Panda

2024 BATCH, MECHANICAL



Harshit Patro

2024 BATCH, IT



Gourav Sahoo

2024 BATCH, MECHANICAL



Akankhya Panda

2024 BATCH, E&I



Om Swastik Mohapatra

2024 BATCH, MECHANICAL



Shibam Kumar Thiady

2024 BATCH, CIVIL

Harv

The proposed system aims to address the issue of the untimely death of saplings planted across Odisha due to lack of care and maintenance. The system will monitor the growth of the planted saplings based on different parameters obtained through sensors and maintain a database of the following to check the growth and status of the sapling regularly.

The system will have a threshold value range for every set of areas, which will be calculated using ideal conditions like temperature, humidity, pH, moisture content, etc that are appropriate for plant growth in the particular area. If the plant's score is within the threshold value then it is growing properly, otherwise, an alert is initiated and sent to the organization that planted the sapling, that the sapling is not meeting the requirements and needs care.

The system will use Google Maps to locate the planted saplings and create a database of such saplings/trees with geospatial references. It will also track the real-time status of the sapling (whether they have grown, need watering, manure, etc.). When the sapling doesn't fall within the threshold value range of a factor(humidity, moisture, height, sunlight, pH), an alert is initiated and sends a notification to the organization that planted the sapling, that the particular sapling needs care and is not meeting the requirements.

The system will also have a feature for the user to view the recently planted saplings and the alerts they have received .The user will also be able to add details of a new plantation and fill out a form that will automatically collect the geospatial data and other information entered by the user, which will be stored in the database.

The system will use Kalman filters to optimally estimate the variables of interest when they can't be measured directly, but an indirect measurement is available. They are also used to find the best estimate of states by combining measurements from various sensors in the presence of noise.

The system will use the ESP 32 to transmit the data from the sensors to the server to update the database to monitor the various parameters that affect the growth of the plant. It will also use Flutter to develop cross-platform applications for Android from a single codebase.

Overall, this system will help the planters to keep a check on the status of the sapling that they have planted remotely and alert them if the plant needs attention and care in any way so that necessary actions can be taken to successfully grow plants and trees at a significant number. The saplings will get attention and protection against various biotic and abiotic factors, and the proper database regarding all the details of the plant and the geospatial will help to keep a record of all the locations in which saplings have been planted.

PROJECT BY:



Ashish Mohapatra

2024 BATCH,IT



Harshit Patro

2024 BATCH,IT



Pratik Agarwal

2024 BATCH,CSE



Jyoti Nanda

2024 BATCH,E&I

Coral and the Delightful Boost it Gives to ML and IoT

POWERING YOUR PROTOTYPES WITH ML

In the vast world of technology, there's a delightful intersection where Artificial Intelligence meets the Internet of Things. And in this whimsical realm, Google's Coral Edge TPU accelerator shines like a vibrant coral reef, offering a wave of benefits to the ML and IoT community. But fear not, for I shall help you navigate these deep waters, bringing you along on a journey to discover how Coral can help even the most enthusiastic of prototypers make their projects swim with cool ML. (I promise, that's the last of the coral and ocean related metaphors or wordplay.)

The Wonders of Coral:

Imagine you're an enthusiast, fueled by a desire to build intelligent devices that can interact seamlessly with the world around them. You've invested countless hours into your prototypes, but their potential seems limited due to computational constraints. Enter Coral, your trusted companion that unlocks a new realm of possibilities. The Edge TPU accelerator, a compact and potent hardware device, empowers your ML models to operate efficiently right at the edge of your devices, ensuring they perform with the swiftness of a salmon downstream.

Benefits for the ML and IoT Community:

Coral's Edge TPU accelerator provides a range of compelling benefits that revolutionize the way ML and IoT projects are developed and deployed. Unlike previous offerings, Coral boasts remarkable speed and efficiency in ML inferencing. The Edge TPU's dedicated hardware architecture, including a Tensor Processing Unit (TPU), is specifically designed to execute ML workloads efficiently, significantly outperforming traditional CPUs and even general-purpose GPUs. The Edge TPU can perform up to 4 trillion operations per second (TOPS) using 0.5 watts for each TOPS. This means it can run complex models such as MobileNet v2 at over 100 frames per second in a power-efficient manner. That's faster than a cheetah running on a treadmill powered by a hamster wheel. This results in faster and more responsive ML applications that can process data in real-time.

Another great feature is that of end-to-end AI infrastructure. The Edge TPU complements Cloud TPU and Google Cloud services to provide an end-to-end, cloud-to-edge, hardware + software infrastructure for facilitating the deployment of customers' AI-based solutions. This means you can train your models in the cloud, and run them on the edge with minimal hassle.

Coral's seamless integration with popular ML frameworks like TensorFlow Lite is yet another advantage. With pre-built libraries and optimized software, developers can easily deploy their ML models on Coral's Edge TPU accelerator, streamlining the development process. This simplifies the workflow, allowing enthusiasts to focus on the creative aspects of their projects while benefiting from the power and efficiency of Coral's hardware.

Making Prototypes Smarter with ML :

Nowadays everyone's dreaming of imbuing their prototypes with the intelligence of machine learning. Coral's Edge TPU accelerator is the perfect ally for this endeavor. Picture your prototype analyzing data in real-time, recognizing patterns, and making intelligent decisions that adapt to your needs.

The Edge TPU can be used for a growing number of industrial use-cases such as predictive maintenance, anomaly detection, machine vision, robotics, voice recognition, and many more. It can be used in manufacturing, on-premises, healthcare, retail, smart spaces, transportation, etc. Whether you want to build a smart doorbell that recognizes your friends from your foes, a robot that plays fetch with your dog, or a wearable device that monitors your health, the Edge TPU enables you to infuse your creations with the power of ML. The remarkable speed, efficiency, offline operation, and integration with popular ML frameworks set Coral apart from previous offerings in similar segments.

How to use the Edge TPU?

The Edge TPU can be used with various prototyping and production products from Coral , such as:

- Coral Dev Board: A single-board computer with a removable system-on-module (SOM) that contains eMMC, SOC, wireless radios, and the Edge TPU. It's ideal for prototyping new projects that demand fast on-device
- Coral USB Accelerator: A USB accessory that brings the Edge TPU coprocessor to existing systems. It enables faster neural network performance on any Linux-based system (including Raspberry Pi) with a USB 2.0/3.0 port1. It's like a magic wand that turns your old laptop into a machine learning powerhouse. Coral Mini PCIe Accelerator & Coral M.2 Accelerators etc.

In addition to these hardware products, Coral also provides a complete developer toolkit so you can compile your own models or retrain several Google AI models for the Edge TPU, combining Google's expertise in both AI and hardware!

In the ever-evolving landscape of ML and IoT, Google's Coral Edge TPU accelerator emerges as a game-changer, providing a seamless and powerful platform for enthusiasts to explore the edges of intelligent device development. Unleash your creativity, leverage Coral's remarkable capabilities, and embrace the transformative potential of Coral's Edge TPU accelerator! Happy exploring!







ARTICLE BY:



Ashutosh Panda

2024 BATCH, MECHANICAL

Exploring the Exciting World of Augmented Reality Glasses



Advancements in technology have paved the way for innovative devices that seamlessly blend the digital and physical worlds. Augmented Reality (AR) glasses are one such groundbreaking hardware technology that has garnered significant attention in recent years. These glasses have the potential to revolutionize various industries and change the way we interact with our surroundings. In this article, we will delve into the world of AR glasses, exploring their functionality, applications, and the future they hold.

1. Understanding Augmented Reality Glasses:
Augmented Reality glasses, also known as AR glasses, are wearable devices that overlay digital content onto the user's view of the real world. Unlike Virtual Reality (VR) headsets that create an entirely immersive digital environment, AR glasses enhance the existing reality by adding virtual elements in real-time. These glasses typically consist of a display, sensors, and a computing unit, allowing users to interact with digital information while maintaining awareness of their surroundings.

2. How Do AR Glasses Work?
AR glasses employ a combination of sensors, cameras, and optics to provide users with an augmented view of the world. The glasses capture the user's perspective through built-in cameras and analyze the surrounding environment in real-time. Then, using computer vision algorithms and depth sensors, the glasses identify physical objects and surfaces. The digital content, such as images, text, or 3D models, is overlaid onto the real-world view and displayed on the glasses' lenses, creating an augmented experience for the wearer.

3. Applications of AR Glasses:
a. Industrial and Manufacturing: AR glasses have found significant application in industrial and manufacturing settings. Workers can wear these glasses to receive real-time instructions, diagrams, and safety information without needing to consult manuals or screens. This hands-free approach enhances productivity, improves efficiency, and reduces errors in complex assembly tasks.
b. Healthcare: In the healthcare sector, AR glasses can assist surgeons by overlaying vital patient data, such as medical images or real-time monitoring data, directly onto their field of view. This technology enhances surgical precision, enables better decision-making, and improves patient outcomes. AR glasses can also aid in medical training by simulating virtual procedures and enhancing the learning



experience for aspiring healthcare professionals.

c. Education and Training: AR glasses offer immersive and interactive learning experiences for students of all ages. From virtual field trips to historical sites to anatomy lessons with 3D models, these glasses enhance traditional education methods by bringing subjects to life. In professional training, AR glasses enable practical simulations, such as virtual equipment handling or emergency response scenarios, ensuring trainees gain practical experience in a safe and controlled environment.

d. Entertainment and Gaming: AR glasses have the potential to transform the entertainment and gaming industry. By overlaying virtual characters, objects, and interactive elements onto the real world, AR glasses offer users a unique and immersive gaming experience. From interactive treasure hunts to virtual pet simulations, the possibilities for AR-based gaming are vast.

4. Challenges and Future Developments:

While AR glasses hold immense potential, there are several challenges that need to be addressed for their widespread adoption. Some of these challenges include improving battery life, reducing the size and weight of the glasses, enhancing the field of view, and refining the accuracy of object recognition and tracking.

However, significant strides are being made to overcome these obstacles. Technological advancements in optics, sensors, and miniaturization are paving the way for more compact and comfortable AR glasses.

Additionally, advancements in Artificial Intelligence (AI) and Machine Learning (ML) algorithms are improving the accuracy and speed of object recognition, enabling more seamless integration of digital content into the real world.

To conclude, with their ability to overlay digital information onto the real world, augmented reality glasses hold immense potential to



revolutionize various industries, enhancing productivity, improving healthcare outcomes, transforming education, and elevating entertainment experiences. As these futuristic devices continue to evolve and become more accessible, we can anticipate a future where AR glasses seamlessly integrate into our daily lives, shaping a new era of immersive and interactive experiences.

ARTICLE BY:



Binay Parida

2024 BATCH,E&I

Exploring the Potential of Visual-Controlled Robotic Arms: A Journey

The field of robotics has witnessed significant advancements in recent years, driven by breakthroughs in artificial intelligence, machine learning, and computer vision. One of the most exciting developments is the emergence of gesture-controlled robotic arms, which leverage advanced gesture recognition technology to enable intuitive and efficient control of robotic movements and functions. In this article, we will explore gesture-controlled robotic arms, their functionalities, potential applications across various industries, and provide a brief guide for the budding robotic enthusiast.

Objective? To bring Intuitive Control to Robotic Arms.

The main objective of our project was to design and develop a visually-controlled robotic arm that could be effortlessly operated through video stream inputs. We wanted to create a user-friendly interface, ensuring that even individuals with limited technical expertise could effectively control it. Additionally, we aimed to make the robotic arm versatile and functional, enabling its use across various industries, such as manufacturing, construction, healthcare, and rehabilitation.

From Hand Gestures to Robotic Movements

Our working model comprised two essential components: capturing hand gestures and controlling the robotic hand. Here's a breakdown of how the model operates.

Hand Gesture Capture: To enable intuitive control, we incorporated hand gesture recognition using OpenCV and the CVZONE library. OpenCV, a remarkable open-source computer vision library, facilitated real-time video processing and hand landmark detection. CVZONE, leveraging the powerful MediaPipe machine learning model, accurately detected hand landmarks. Using OpenCV and CVZONE, we captured hand gestures by processing video frames from a webcam. With image processing techniques and hand landmark detection, we extracted finger landmark data and transformed it into a string representation.

Robotic Hand Control: The physical aspect of our project involved building the robotic arm using different mechanical components, an Arduino Uno microcontroller and servo motors. Each servo motor was connected to a digital pin on the Arduino Uno. We utilized the Arduino IDE to program the microcontroller, enabling precise control over the servo motors. Establishing serial communication between the computer and Arduino Uno allowed us to send commands effectively. We tried using ESP8266 instead of Arduino but ESP8266 didn’t provide us with the required current of 120-250 mA for Servo Motors. The maximum current draw of the Arduino is 200mA. The maximum current that can be drawn from a single GPIO pin is 12mA. Using a wifi module produces a delay so we used

Serial Communication.

Integration: Merging Vision and Integrating hand gesture capture was the key to achieving seamless control. With the string representation of hand gestures, we established a connection between the computer and the Arduino Uno through serial communication. The Arduino code, receiving the commands, interpreted the characters and controlled the servo motors accordingly. This allowed the robotic hand to move in response to the captured hand gestures and voice commands.

Now that we have an overview of the model and the control system, lets start diving deeper into the most vital components of the system.

Machine Learning Pipeline

A machine learning pipeline codifies and automates the process of developing a machine learning model. Data extraction, pre-processing, model training, and deployment are all handled by machine learning pipelines. MediaPipe Hands uses a machine learning pipeline that comprises a number of interconnected models. A palm detection model which works on the entire frame comes back as an aligned hand boundary. From the palm detector-cropped picture area, a hand landmark model extracts high-fidelity 3-dimensional hand key points. Moreover, utilizing the hand landmark identified in the previous frame, crops may be made in the pipelines, and palm detection is only required to relocalize the hand when the landmark models no longer detect its presence.

MediaPipe

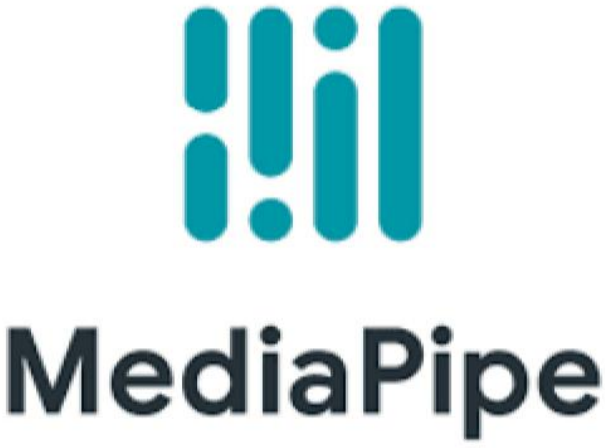
To detect initial hand locations, a single shot detector model was optimized for mobile real-time

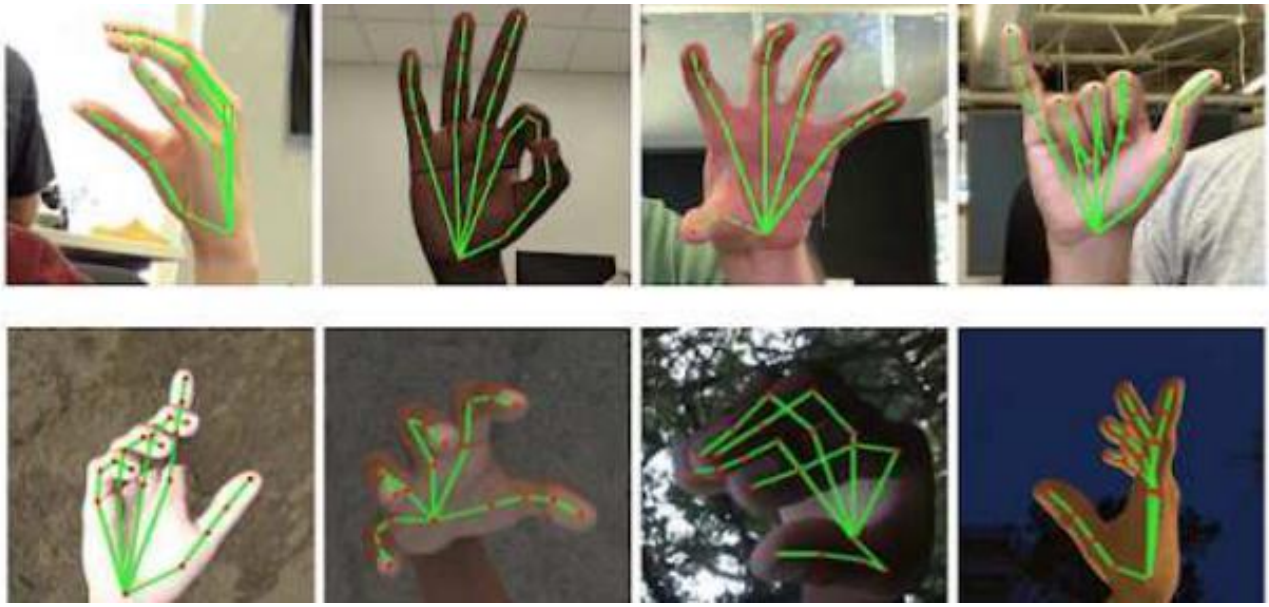
Detection of hands using the Mediapipe's hand landmark detection lite model and full model. Whereas faces have high contrast patterns, e.g., in the eye and mouth region, the lack of such features in hands makes it comparatively difficult to detect them reliably from their visual features alone.

Instead, providing additional context, like arm, body, or person features, aids accurate hand localization. Because palms frequently entirely cover themselves or one another (for instance, hand occlusions and hand shaking), and there are no high contrast styles, hand perception in real time is a particularly difficult computer vision task. MediaPipe's Hands is a high-resolution

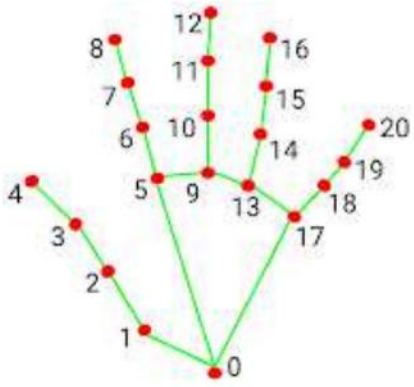
tracking device for hands and fingers. 21 3-dimensional landmarks of a hand are determined using machine learning.

A single image is used to determine 21 3D landmarks of a hand using machine learning. While most current framework systems rely on complex desktop environments for inference, our approach works in real time on a cell phone and can be scaled to many hands.





After the palm detection over the whole image our subsequent hand landmark model performs precise keypoint localization of 21 3D hand-knuckle coordinates inside the detected hand regions via regression, that is direct coordinate prediction. The model learns a consistent internal hand pose representation and is robust even to partially visible hands and self-occlusions. To obtain ground truth data, we have manually annotated ~30K real-world images with 21 3D coordinates, as shown below (we take Z-value from image depth map, if it exists per corresponding coordinate). To better cover the possible hand poses and provide additional supervision on the nature of hand geometry, we also render a high-quality synthetic hand model over various backgrounds and map it to the corresponding 3D coordinates.



0. WRIST
1. THUMB_CMC
2. THUMB_MCP
3. THUMB_IP
4. THUMB_TIP
5. INDEX_FINGER_MCP
6. INDEX_FINGER_PIP
7. INDEX_FINGER_DIP
8. INDEX_FINGER_TIP
9. MIDDLE_FINGER_MCP
10. MIDDLE_FINGER_PIP
11. MIDDLE_FINGER_DIP
12. MIDDLE_FINGER_TIP
13. RING_FINGER_MCP
14. RING_FINGER_PIP
15. RING_FINGER_DIP
16. RING_FINGER_TIP
17. PINKY_MCP
18. PINKY_PIP
19. PINKY_DIP
20. PINKY_TIP

OpenCV

OpenCV (Open Source Computer Vision Library) is an open source computer vision and machine learning software library. OpenCV was built to provide a common infrastructure for computer-vision applications and to

accelerate the use of machine perception in the commercial products. Being an Apache 2 licensed product, OpenCV makes it easy for businesses to utilize and modify the code.

Computer Vision is an interdisciplinary field that deals with how computers can be made to gain a high-level understanding from digital images or videos.The idea here is to automate tasks that the human visual systems can do. So, a computer should be able to recognize objects such as that of a face of a human being or a lamp post, or even a statue.

Once the Gesture is read by CVzone and the finger landmarks are compared and set to 0 or 1. And the string of 5 characters was sent to the Arduino. The Arduino compares the Characters and depending on it's value of 1 or 0, sets the servo motor to 0 or 180 degrees respectively. Thus the finger is pulled down . Once the value of the finger changes back to 1 the servo sets itself back to 0 and the rubber band pulls back the fingers.

Embarking on the journey of developing a voice-controlled robotic arm has been an exhilarating experience. Our project successfully demonstrated the potential of integrating vision, and control technologies to create a versatile and efficient robotic system. With a user-friendly interface and precise control, voice-controlled robotic arms have vast applications in manufacturing, healthcare, agriculture, logistics, defense, and education. I hope this detailed account of the objective, working model, and methodology of our voice-controlled robotic arm project has provided you with valuable insights. So, go ahead and embark on your own adventure in robotics, unleashing the power of voice commands to control robotic movements. The possibilities are endless! Remember, innovation knows no bounds when passion meets technology. Happy experimenting!





PROJECT BY:



Prachetas Padhi

2023 BATCH,E&I



Mousumi Das

2023 BATCH,E&I



Samarpit Das

2023 BATCH,E&I



Deepak Kumar Sahoo

2023 BATCH,E&I

ALUMNI SPEAK

"COMING TOGETHER IS A BEGINNING.
KEEPING TOGETHER IS PROGRESS.
WORKING TOGETHER IS SUCCESS"





Sanjay Reddy K

2018 Batch

ZAIRZA: A small non-technical thought on the best technical society. We all are very aware of the great things our club members have accomplished over the years and as an alumnus I am proud to see that the legacy is taken ahead in an astonishing way by our juniors. It has been 5 years since I bid farewell to that small room in which we built our big dreams. When I look back and ask myself why Zairza was so special, learning technical skills was never the answer. The club taught us how to dream big, it taught us how to learn things ourselves, it taught how to work together, it taught us how to compete, it taught to how to deal with failures, it taught to how to share our success. These things couldn't have been learnt this well anywhere else. Proud to be member of Zairza family forever. KEEP THE LEGACY GOING !!!



Anisha Swain

2019 Batch

Zairza always has a great emphasis on bringing the best out of the brilliant minds of our college and it amazes me how we rise up to every challenge as a family. As a team we have seen ups and downs and we have seen our teammates doing wonders. From open-source competitions to hackathons to conferences, Zairza has always opened up new opportunities for folks. This place has made careers and has given many of us the direction that changed our life.

The cherished memories and endless learning that Zairza provided us is going to stay with us forever. Always been grateful for the friendships forged, challenges conquered, and knowledge gained here. Here's to the tech enthusiasts who made it all unforgettable. Forever grateful.



Binayak Behera

2021 Batch

Zairza, the best club in the town of CET. It's been a long time still, but the motto of zairza resonates with me "Wonder Think Create". Everything I learned in my college life is because of this place. It was because of seniors and my peers, who pushed me to always learn something, and was able to achieve some great things and gained so many memories along the journey. I am grateful to have been part of this club and happy to see the family growing and achieving new heights. Lastly, for anyone passionate about building new things, this is the right place for you in CET. Cheers.



Pruthwiraj Nayak

2021 Batch

For some "Zairza" is a club, but for me it is my family. As an alumni of this technical club, I am proud to say that my experience with the club was truly life-changing. I joined the club in my first year of university and was stunned by the number of experiences I had and the skills I learned. All the hackathons, technical and brainstorming sessions, night trips, parties and many other souvenirs will always treasure me throughout my life.

I am grateful for my time with Zairza and for the opportunity to be part of such a dynamic and knowledgeable group. Zairza is always provide the scope to reach out to brilliant people, creative ideas and learn new things. I believe my experience at the club has been instrumental in my success as an engineer today.



Sinchan Mishra

2019 Batch

Domain independence is the new cool!

Whenever we get to hear of something really complicated, we compare it with "rocket science"... And not with "software / robotics / design". In today's world with AI replacing specific tasks, a major way for humans to be relevant is being versatile. AI can give HTML pages all by itself... But to integrate it with backend APIs, DB and build a complete product... We still need humans. Here, by being versatile, we are erasing the barrier of being a UI / backend developer... We are just developer.

Let's say AI reaches a stage where it can make complete software product by itself, connecting it with IOT applications would still remain upto humans. There, we are erasing the gap between software engineer and hardware engineer. In a near future, full-stack engineer would refer to a person who is okay with building products involving both hardware and software... And current full-stack developer requirements would be specified as "software full-stack".

So, to reiterate... Be relevant by keeping yourselves versatile. Build a mindset to pick up any technology and start working on it without hesitation of you having any prior idea about the technology or not. And with this attitude, even "space won't be the limit" because "rocket science" would be something already conquered by you!

What other place better than Zairza to be domain independent?! We got people with all kinds of expertise. To this day, I consult my Zairza connections (batchmate / senior / junior) whenever I am stuck. That's what Zairza gives us. Preserve and enjoy it!



Gunjan Giri

2022 Batch

It fills me with immense joy and pride to witness my juniors carry forward the ritual of combining together the experiences and a bevy of intellectual assets collected from the current members and alumni of Zairza, into a comprehensive newsletter cleped WireBytes. Truth be told, Zairza not only holds a significant place in my heart but also has a colossal contribution towards my frame of mind. During my years in Zairza, I have pushed my limits to perform proficiently as a learning member and eventually metamorphosing into an adroit leader committed towards delivering my duties as the coordinator of Zairza.

I aspire to observe the continuation of Zairza's tradition of achieving exceptional breakthroughs & winning laurels while outshining it's former members and setting milestones for the upcoming members alike. With that I wish the present and future members of Zairza all the best for advancing and embarking their technical journeys respectively, alongside swearing allegiance to the progress of Zairza in it's entirety. Godspeed!



Prateek Kumar Mohanty

2022 Batch

Reflecting upon my time with Zairza, it's impossible not to be flooded with a mix of nostalgia and pride. The organization, for me, was more than just a group, it was a crucible of learning, innovation, and unyielding commitment. I vividly remember the countless hours dedicated to not just mastering technical skills, but also cultivating an ethos of leadership, collaboration, and continuous improvement. It was Zairza that transformed me from a passionate student into a leader with vision and purpose.

As I witness the newer generations of Zairza members, my heart swells with pride. The legacy we helped shape is in adept hands, pushing boundaries and setting even loftier standards. I am confident that the spirit of Zairza – its drive, its passion, its relentless pursuit of excellence – will continue to shine brightly in the years to come. To all current and future members, I extend my warmest wishes. May you carry forward the torch of Zairza's legacy, illuminating paths and inspiring countless others as you journey forward.