



ROUTEWIZ: CAMPUS INDOOR NAVIGATION SYSTEM



MINI PROJECT REPORT

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ROUTEWIZ: CAMPUS INDOOR NAVIGATION SYSTEM

A MINI PROJECT REPORT

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to

the APJ Abdul Kalam Technological University in partial fulfillment of the
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in

Artificial Intelligence and Data Science



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CERTIFICATE

This is to certify that the report entitled “RouteWIZ: An indoor campus navigation system” is a bonafide record of the work done by Aishwarya Menon, Elsamaria Sachin, Fathima Roya Saifudeen, University Register Number U2008007, U2008029, U2008030 in partial fulfillment of the award of the Degree of Bachelor of Technology in Artificial Intelligence and Data Science at Rajagiri School of Engineering & Technology, Kakkanad, Kochi during the academic year 2022-23.

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Submitted for the practical examination conducted on.....

Internal Examiner

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ABSTRACT

In recent years, college campuses have expanded significantly, leading to larger and more complex indoor environments. Navigating these vast spaces efficiently and locating specific destinations can be challenging for students, faculty, and visitors alike.

This project aims to present an innovative Indoor College Navigation System (ICNS) designed to assist college students and visitors in navigating complex indoor environments. The system combines textual instructions and animated maps to offer an intuitive and user-friendly navigation experience.

The project proposes the development of a comprehensive database system that integrates with an animated map interface that displays the indoor layout of the college buildings, including classrooms, offices, libraries, common areas, and other relevant locations to provide guidance and personalized navigation assistance. The website will be accessible from multiple entrance points on the campus, through QR codes. The database will be continuously updated to reflect changes in the campus layout, including new buildings, renovations, and temporary closures.

The primary goal of this project is to create a seamless and intuitive navigation platform that offers a comprehensive solution to the navigational challenges faced on modern college campuses

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CHAPTER 1

INTRODUCTION

1.1 GENERAL BACKGROUND

In an increasingly interconnected and technology-driven world, the need for efficient indoor navigation solutions has become crucial, particularly in large and complex campuses such as universities, office complexes, and public institutions. Navigating through these sprawling indoor spaces can often be challenging for newcomers and visitors, leading to wasted time and frustration. In response to this issue, our mini project aims to develop an innovative Indoor Campus Navigation Website supported by an interactive and animated map to provide seamless and user-friendly guidance within these intricate environments. This project leverages the power of modern web technologies to offer an intuitive, navigation experience that simplifies the process of locating various facilities and points of interest within the campus.

1.2 PROJECT OBJECTIVE

Enhanced User Experience:

The primary focus of this mini project is to enhance the user experience of individuals navigating through indoor spaces. By providing a visually appealing and interactive animated map, users can easily grasp their surroundings and find the shortest and most efficient routes to their desired destinations.

Updates:

The website can be updated to incorporate live information about events, room availability, and any ongoing changes in the campus layout.

Intuitive Interface:

A user-friendly interface will be designed to accommodate individuals of varying technical proficiency. The map will be easy to interact with, allowing users to view the map and search for specific locations effortlessly.

Accessibility Features:

The project will consider accessibility for all users, including individuals with disabilities, maps showing disabled friendly path will be available .Features like voice-guided navigation with assistive technologies will be implemented to ensure inclusivity.

Scalability and Flexibility:

The website will be developed with scalability in mind, allowing it to be adapted for different indoor environments and campuses with minimal adjustments. This flexibility will make the solution applicable to a wide range of institutions.

1.3 SCOPE

Navigation Functionality:

The primary focus of the project is to develop a web-based platform that offers efficient indoor navigation within a campus environment. The website will enable users to input their desired destinations and receives step-by-step directions on the animated map, highlighting the shortest and most optimal routes to their chosen locations.

Interactive Animated Map:

The project will include the creation of an interactive and visually appealing animated map that dynamically represents the indoor spaces of the campus. The map will allow users to explore different areas, providing an immersive experience.

Campus Size and Complexity:

The project's scope will be limited to a specific campus or building with a moderate level of complexity. While the solution should be adaptable to various indoor environments, the complexity of the initial campus will be within reasonable bounds.

Technology Stack:

The project will utilize modern web technologies such as HTML, CSS, and JavaScript for creating website , animaker for map rendering and animation. Back-end technologies like SQL and PHP for making databases will be employed for data integration.

Testing and Feedback:

Quality assurance and user testing will be conducted to ensure the website's functionality, usability, and accuracy. Feedback from users will be collected and used to make necessary improvements.

Deployment and Maintenance:

The project scope will include the deployment of the website on a suitable hosting platform. Ongoing maintenance and updates to ensure the website's continued functionality and adaptability may also be part of the scope.

CHAPTER 2

LITERATURE SURVEY

2.1 AVENZA MAP

Avenza Maps is a popular mobile mapping app designed for outdoor enthusiasts, hikers, and cartographers. It allows users to download and access digital maps on their mobile devices for offline use in areas with limited or no internet connectivity. The app is available for both iOS and Android devices.

2.1.1 FEATURES :

- Map Store: Avenza Maps provides access to a vast map store where users can discover and download a wide range of digital maps, including topographic maps, trail maps, nautical charts, and more. These maps are typically created and uploaded by map publishers, government agencies, and private cartographers.
- Offline Use: One of the main attractions of Avenza Maps is its ability to work offline. Users can download maps to their devices before heading into remote areas, ensuring they have access to crucial geographic information even without an internet connection.
- GPS Tracking: Avenza Maps utilizes the GPS capabilities of the user's device to show their current location on the downloaded maps in real-time. This feature allows users to navigate and track their movements even without a cellular signal.
- Waypoints and Markers: Users can add waypoints, points of interest, and markers on the maps to mark specific locations or plan routes.

- Geotagging: The app allows users to take geotagged photos directly from within the app, linking the photos to their precise location on the map.
- Measurements and Area Calculation: Avenza Maps provides tools for measuring distances and calculating areas directly on the maps.
- Map Overlays: Users can import their own custom maps or geo-referenced images and overlay them onto the existing maps to create personalized map layers.
- Collaboration: Avenza Maps enables map users to collaborate with others by sharing map annotations, tracks, and waypoints through cloud-based services or email.
- Data Collection: In addition to using maps from the Avenza Map Store, the app can be used for field data collection. Users can create their own mobile data collection forms and collect spatial data using the app's GPS capabilities.

2.1.2 LIMITATIONS:

- Map Availability: The availability of maps in the Avenza Map Store may vary depending on the region and the publishers who have contributed to the store. Some areas may have limited map coverage, making it challenging to find suitable maps for specific locations.
- Map Accuracy and Updates: The accuracy and currency of maps in the Avenza Map Store depend on the data provided by map publishers. Some maps may be outdated or lack precise details, potentially leading to inaccuracies in navigation and information.
- Map File Sizes: High-resolution or large-scale maps can result in large file sizes, occupying significant storage space on the user's mobile device.

- Limited Free Maps: While Avenza Maps provides access to a wide range of maps, many high-quality and specialized maps may come at a cost. Free maps might have limited coverage or resolution.
- Battery Drain: Continuous use of GPS for navigation can be demanding on a mobile device's battery. Users should be mindful of their device's battery life when relying on Avenza Maps for extended outdoor activities.
- Offline Limitations: While Avenza Maps works offline, it requires users to download maps in advance. If users fail to download the necessary maps before entering an area with no internet connectivity, they won't have access to real-time navigation or updates.
- GPS Reliance: Avenza Maps relies on the device's GPS for location tracking. In areas with poor GPS signal reception, the app's accuracy may be compromised.
- Limited Offline Functionality: While users can view and navigate the downloaded maps offline, some advanced features may require an internet connection. For example, accessing additional map details or map updates may require internet access.
- User-Generated Maps: While Avenza Maps supports importing custom maps and geo-referenced images, the accuracy and quality of these user-generated maps depend on the data and calibration provided by the user.
- Data Privacy: Users should be cautious about sharing sensitive location data through Avenza Maps, especially when collaborating or sharing map annotations with others.
- Device Compatibility: While Avenza Maps is available for both iOS and Android devices, not all features or maps may be accessible on every device, depending on hardware capabilities and operating system versions.

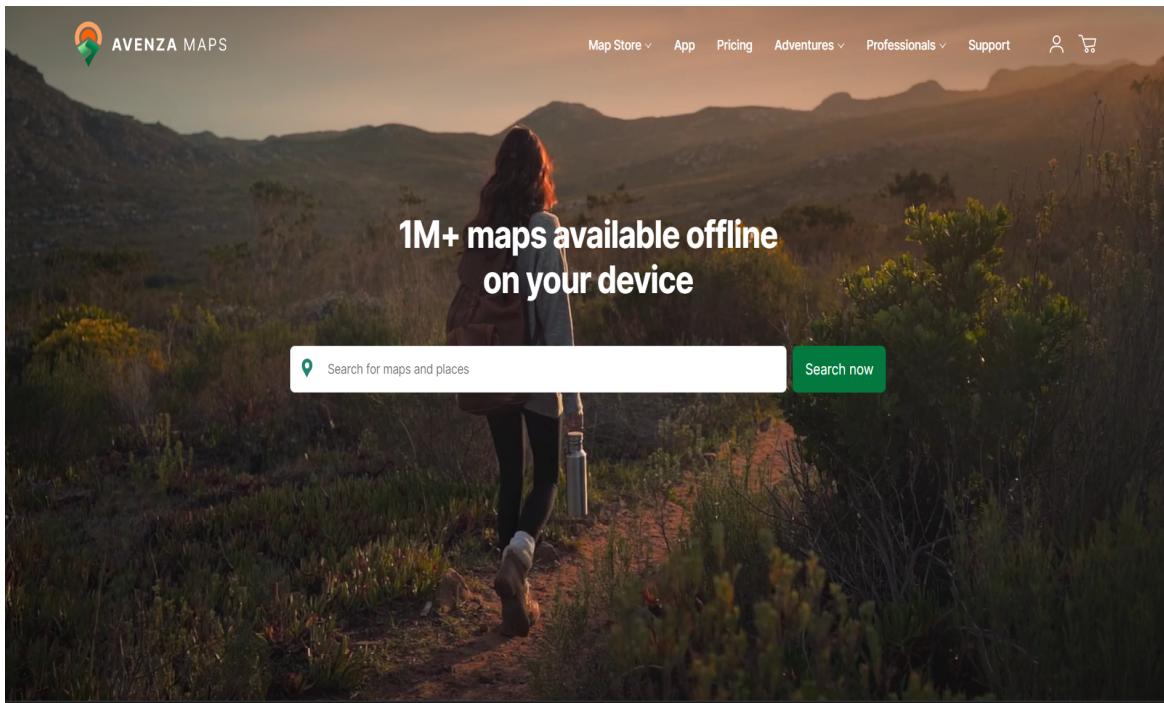


Figure 2.2 Website layout of Avenza Map

2.2 INDOORATLAS

IndoorAtlas is a company that provides an indoor positioning and mapping platform designed to enable accurate and real-time indoor positioning for mobile devices. The platform uses the Earth's geomagnetic fields and inertial sensors (such as the smartphone's built-in compass and accelerometer) to determine a user's indoor location without relying on external infrastructure like Wi-Fi beacons or Bluetooth signals.

2.2.1 FEATURES :

- **Geomagnetic Positioning:** IndoorAtlas leverages the unique magnetic field patterns within indoor environments to triangulate a user's position. This technology allows for indoor positioning without the need for additional hardware installations.

- Inertial Sensors: The platform combines data from the device's inertial sensors, such as the compass and accelerometer, to enhance positioning accuracy, especially in areas with weak geomagnetic signals.
- No Extra Infrastructure: Unlike many other indoor positioning technologies, IndoorAtlas does not require the installation of additional beacons or Wi-Fi access points. This can simplify the setup process for indoor positioning systems.
- Real-Time Positioning: IndoorAtlas provides real-time positioning updates, enabling smooth and continuous tracking of a user's location as they move within indoor spaces.
- SDK Integration: The company offers a Software Development Kit (SDK) that developers can integrate into their mobile applications, allowing them to incorporate indoor positioning capabilities into their own apps.
- Multi-platform Support: The IndoorAtlas SDK supports both Android and iOS platforms, making it accessible to a wide range of mobile device users.

2.2.2 LIMITATIONS :

- Magnetic Interference: The accuracy of IndoorAtlas's geomagnetic positioning can be affected by magnetic interference within buildings. Metal structures, electronic equipment, and other magnetic sources can distort the geomagnetic field and impact the positioning accuracy.
- Calibration Requirements: Achieving optimal positioning accuracy with IndoorAtlas often requires calibration of the mobile device's sensors. This calibration process may need to be performed periodically, especially if the device's environment or hardware changes.

- Indoor Coverage and Mapping: IndoorAtlas's accuracy is dependent on the presence of distinctive geomagnetic patterns within a building. In some structures, particularly those with minimal geomagnetic variation, positioning accuracy may be limited.
- Indoor Signal Strength: Geomagnetic signals may be weak or inconsistent in certain indoor areas, such as windowless rooms or underground spaces. In such cases, positioning accuracy may be compromised.
- Battery Consumption: The use of geomagnetic positioning and continuous sensor data processing can lead to increased battery consumption on mobile devices, potentially impacting the device's overall battery life.
- Signal Drift and Noise: Geomagnetic signals can be susceptible to drift and noise, which might result in minor fluctuations in the calculated position over time.
- Limited Vertical Positioning: Geomagnetic positioning may not provide accurate vertical (floor-level) positioning information. This limitation can be significant in multi-floor buildings where precise vertical tracking is crucial.
- Indoor Signal Mapping Requirements: To achieve accurate positioning, the IndoorAtlas platform typically requires a comprehensive mapping process for each indoor environment. This mapping effort may involve walking through the building to collect magnetic field data.
- Device Compatibility: The accuracy and performance of IndoorAtlas may vary across different mobile devices due to differences in sensor quality and hardware capabilities.
- Updates and Support: Like any technology, the performance and limitations of IndoorAtlas may evolve over time through software updates and support from the company.

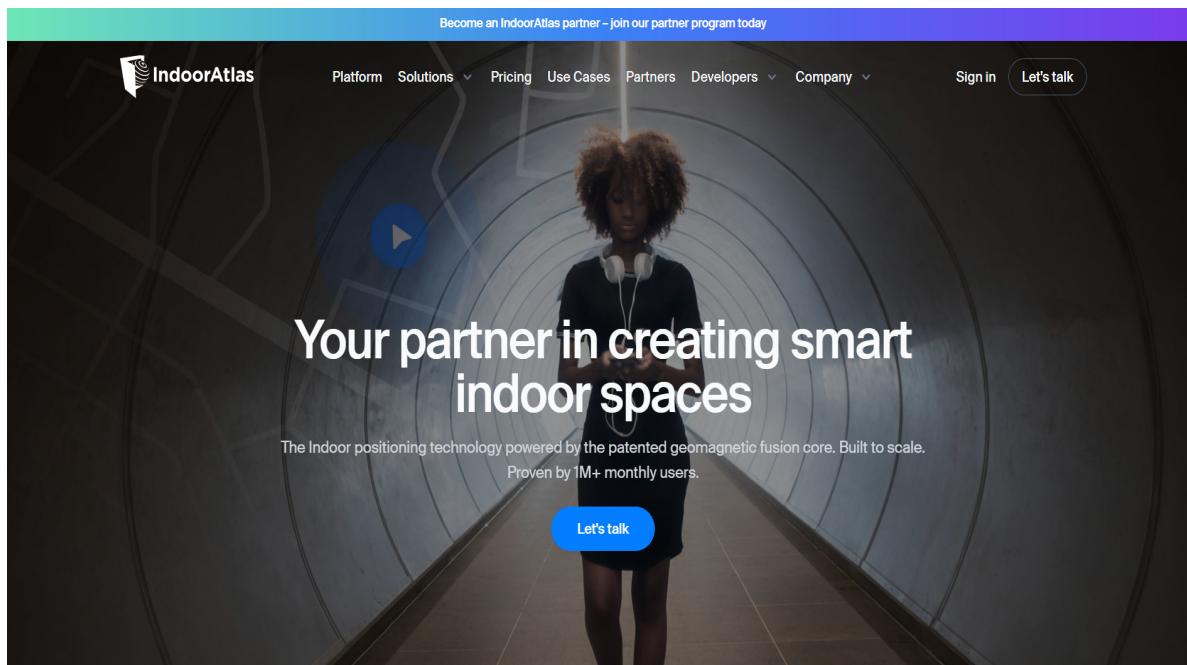


Figure 2.2 Website layout of IndoorAtlas

2.3 CAMPUSBIRD

CampusBird was a company that provided interactive campus maps and wayfinding solutions for universities and other organizations. It offered a platform for creating and hosting detailed digital maps of university campuses, allowing students, staff, and visitors to navigate and explore the campus easily.

2.3.1 FEATURES :

- Interactive Maps: CampusBird provided interactive, zoomable maps that users could explore on their computers or mobile devices. Users could search for buildings, landmarks, departments, and other points of interest on the campus.
- Wayfinding and Directions: Users could get step-by-step directions from one location to another on the campus, making it convenient for newcomers and visitors to find their way around.

- Virtual Tours: CampusBird allowed universities to create virtual tours showcasing various campus highlights, facilities, and departments. This feature was beneficial for prospective students and visitors who wanted to explore the campus remotely.
- Customization: Universities had the option to customize the appearance and content of their CampusBird maps to align with their branding and specific campus needs.
- Integration: CampusBird could be integrated into the university's website or mobile app, providing a seamless and cohesive user experience for campus navigation.
- Accessible Maps: The maps created using CampusBird were typically designed to be accessible, providing features like alternative text and other accommodations for individuals with disabilities.

2.3.2 LIMITATIONS :

- Map Accuracy and Currency: The accuracy and currency of CampusBird maps depend on the data provided by the university or the organization. If the maps are not regularly updated, they might contain outdated information or not reflect recent changes to the campus layout.
- Limited Coverage: CampusBird maps are specific to the universities or organizations that have adopted the platform. Campuses that have not utilized CampusBird may not have access to its wayfinding and navigation services.
- Dependence on University Data: The quality of the CampusBird maps relies on the data provided by the university or organization. If the campus data is incomplete or inaccurate, it may affect the functionality of the maps.

- Technical Requirements: Integrating CampusBird into the university's website or mobile app may require technical expertise, and some universities may face challenges with implementation.
- Cost and Maintenance: CampusBird may involve costs associated with licensing the platform and maintaining the maps over time. Universities should consider budgetary considerations for long-term use.
- User Adoption: The effectiveness of CampusBird as a campus navigation solution depends on user awareness and adoption. If students and visitors are not aware of or do not use the platform, its benefits may not be fully realized.

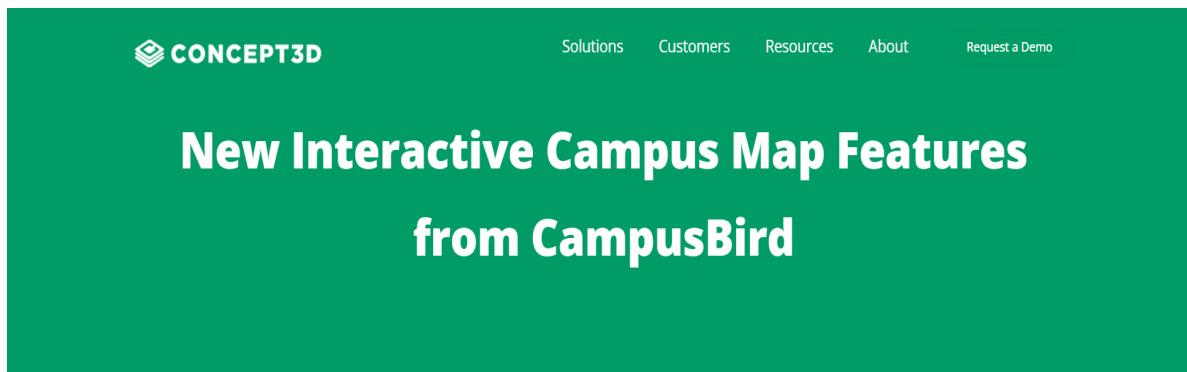


Figure 2.2 Website Layout of CampusBird

CHAPTER 3

METHODOLOGY

3.1 METHODOLOGIES USED

The development of the Indoor Campus Navigation Website will involve the following key steps:

Data Collection and Processing:

Gathering detailed floor plans and layout information of the campus will be the initial step. The collected data will be processed and transformed into a structured format suitable for map rendering.

Map Rendering and Animation:

Using advanced animaker,, an animated map will be created to visualize the indoor spaces dynamically. The map will be integrated with interactive elements, allowing users to explore the campus virtually.

Navigation Algorithm:

An efficient navigation algorithm will be devised to calculate the shortest and optimal routes between different locations.

User Interface Design:

The user interface will be designed with a focus on usability and aesthetics. It will incorporate intuitive controls, search functionalities, and user feedback mechanisms to ensure a smooth user experience.

Easy updation of Data:

To provide up-to-date information, including event schedules, and any changes in the indoor environment.

3.1.1 SYSTEM ARCHITECTURE OF ROUTEWIZ

RouteWIZ has three user types - admin, user, and faculty. The Admin handles and updates the database and the map, whereas the faculty can update the database after every semester, or in case of any event being held in the college premises to help visitors, staff and students

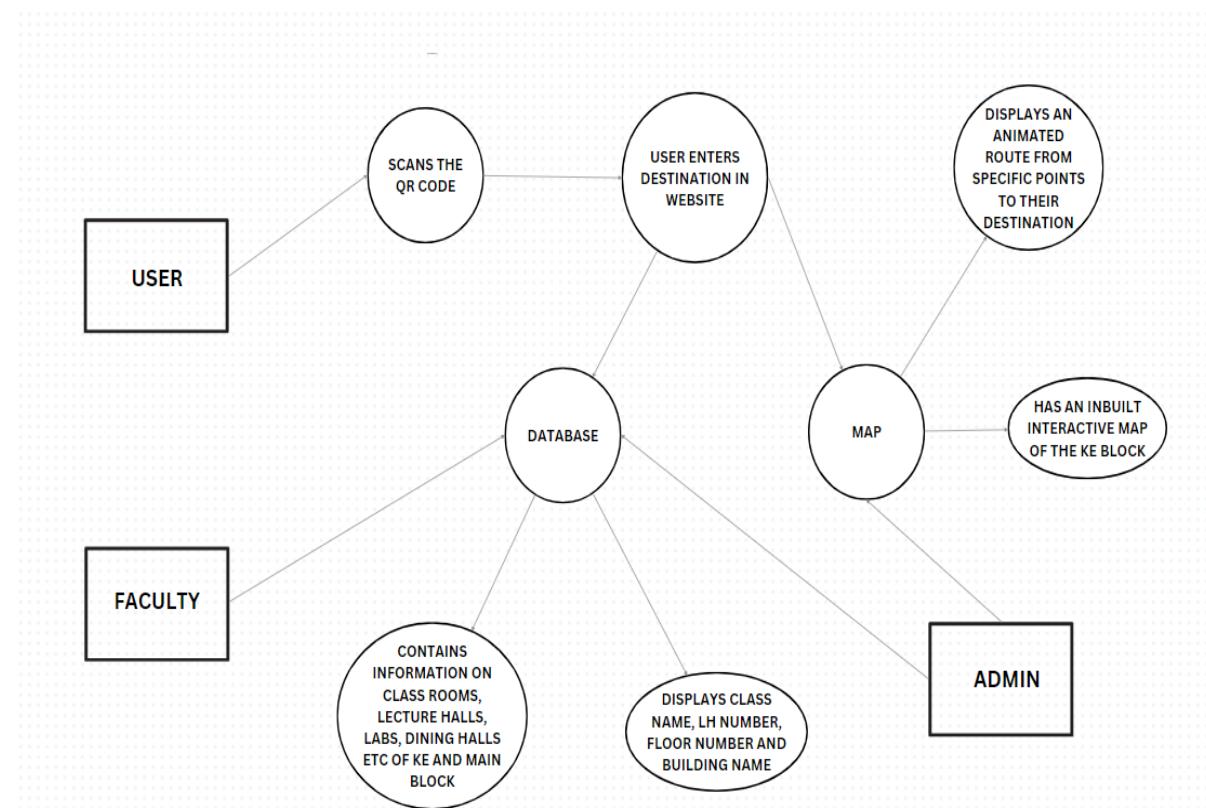


Figure 3.1.1: System Architecture of RouteWIZ

3.1.2 USE CASE DIAGRAM

The use case diagram provides a comprehensive overview of the interactions between various actors and the functionalities offered by the Indoor Campus Navigation Website with Animated Map for Guidance. The diagram visually represents the system's core features from a user's perspective, facilitating a better understanding of its behavior and requirements.

It captures the key functionalities and interactions of the Indoor Campus Navigation Website with Animated Map for Guidance. It serves as a valuable blueprint, guiding the development process and ensuring that the system caters to the needs of its primary actors – Users, Admin, and Faculty – in an efficient and user-friendly manner.

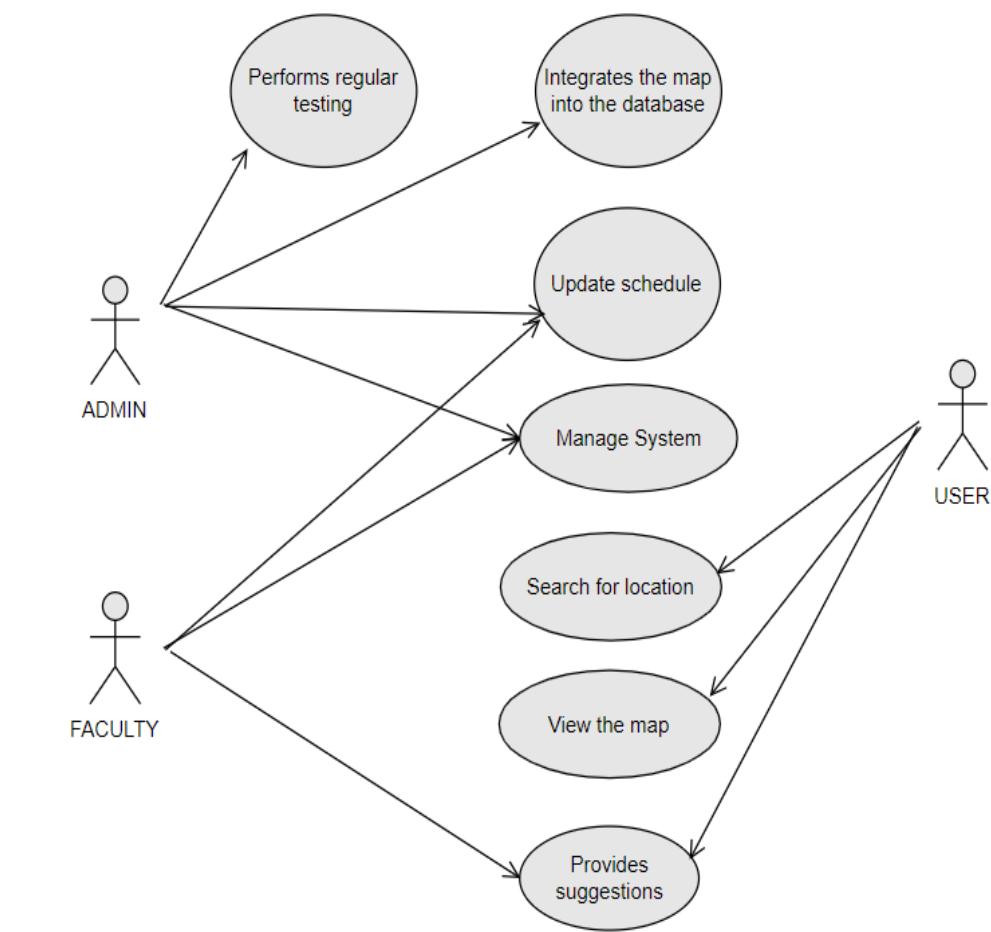


Figure 3.1.2: Use case diagram of RouteWIZ

3.2 MODULE 1 - ADMIN

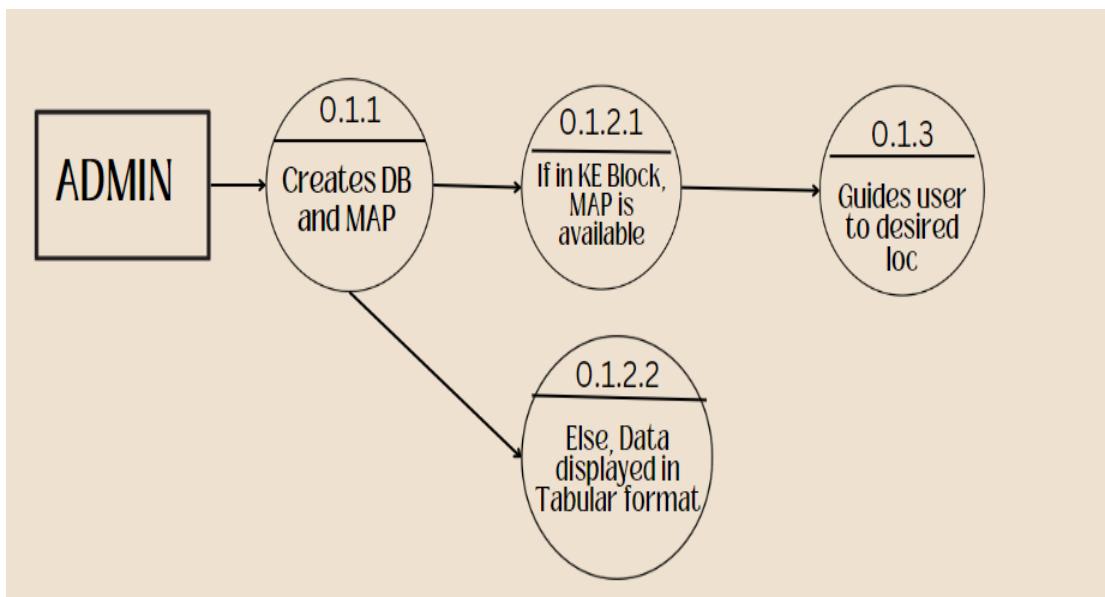


Figure 3.2: Data flow diagram of admin

- Admin creates and handles the database and the map integration process
- The Admin has the authority to manage the system through the admin panel. This includes updating campus map data and accessing analytics.
- If the location requested by the user is in KE Block, the user will be provided with tabular instructions as well as map support.
- If the location requested by the user is in the Main Building, the only tabular instructions will be provided such as the building name and floor number.
- If a user requests for a location which is not part of the campus, an invalid request signal will be provided.

3.3 MODULE 2 - FACULTY

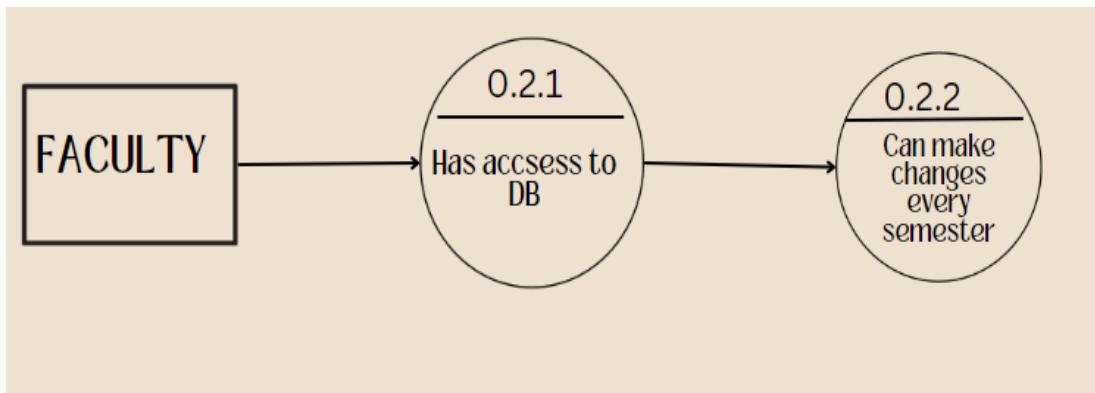


Figure 3.3: Data flow diagram of Faculty

The faculty can

- Update their schedules, events, and classroom availability, ensuring that the information presented to Users is accurate.

3.4 MODULE 3 - USER

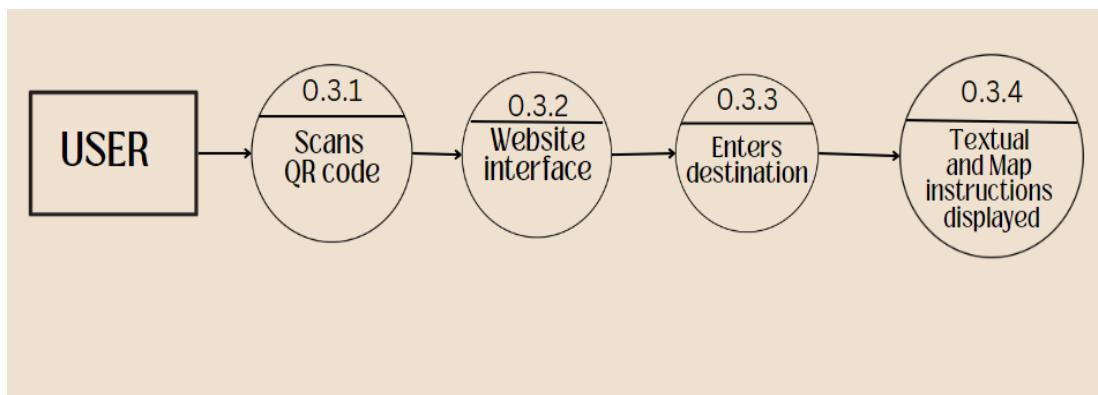


Figure 3.4: Data flow diagram of User

The User can

- Scan the QR codes pasted at each entrance to access the website
- From the website the user can access the search page, and enter the desired location
- Based on the location, the user will be provided with tabular and map instructions

3.5 TABLE DESIGN

There are three tables used for RouteWIZ:- dept, routewiz_1_, and extras

dept

Table contains information about the various types of departments in the college such as Information Technology, Computer Science, Civil engineering,Mechanical engineering, Applied and electronics, Electronics and electrical engineering, Electronics and communication, and the department ID assigned to each department. The primary key of this table is dept_id.

routewiz_1_

Table contains information about the different classrooms and Lecture halls in the college, such as Lh number , floor number, class name, building name i.e. either KE Block or Main Building, and the department ID .The dept_id is a foreign key to the table.

extras

Table contains information about the different non lecture halls such as Auditoriums, Chapel, Lab, Library etc in the college, as class name, floor number, building name, and department ID .The dept_id is a foreign key to the table.

3.5.1 RELATIONAL SCHEMA

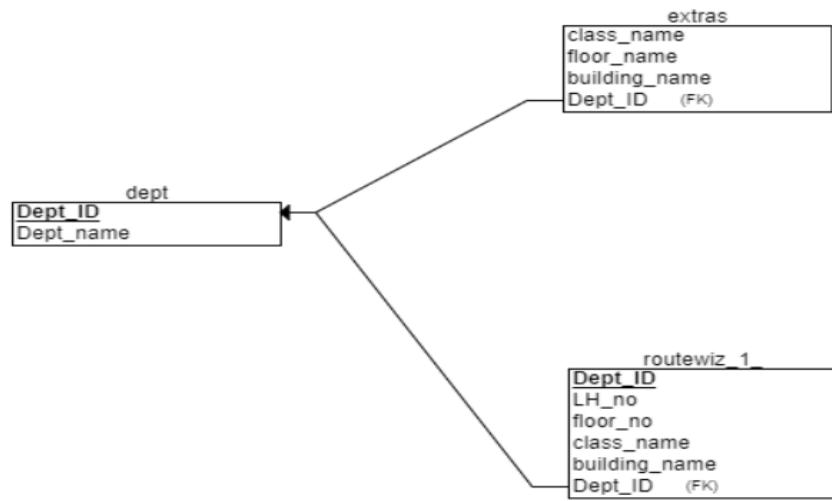


Figure 3.5.1: Depicts the relational schema

3.5.2 ER DIAGRAM

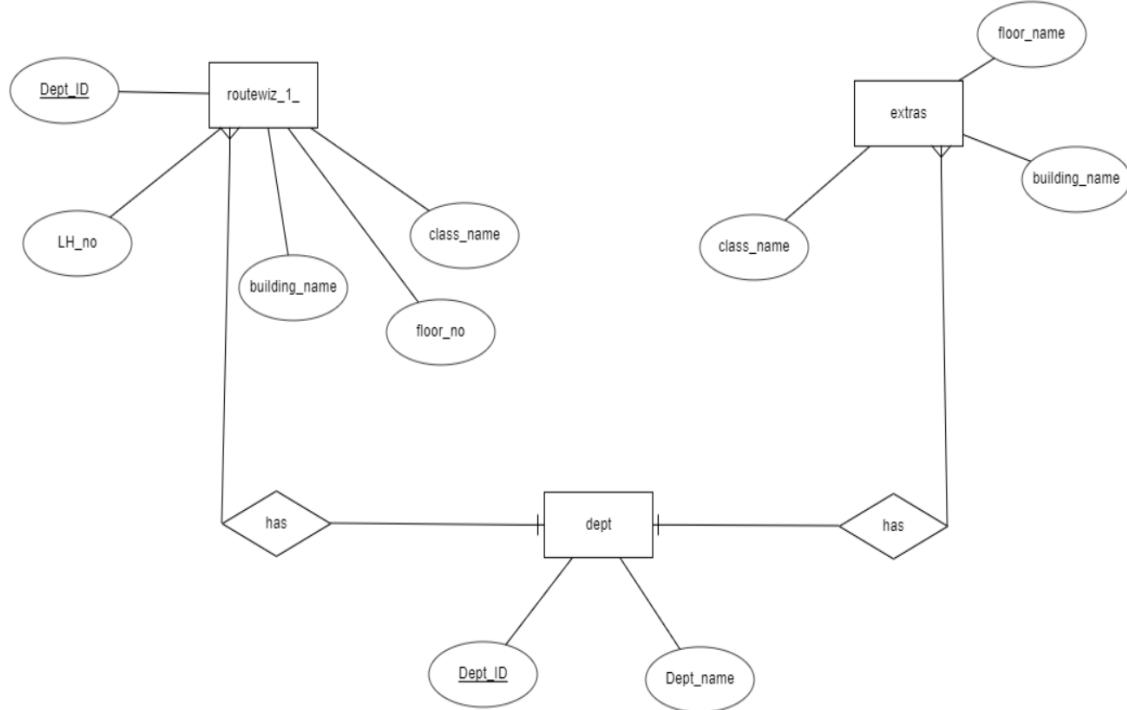


Figure 3.5.2: Depicts the Entity relationship diagram

TABLES CREATED :-

Table	Action	Rows	Type	Collation	Size	Overhead
dept	Browse Structure Search Insert Empty Drop	8	InnoDB	utf8_general_ci	16.0 KiB	-
extras	Browse Structure Search Insert Empty Drop	111	InnoDB	utf8_general_ci	16.0 KiB	-
routewiz_1	Browse Structure Search Insert Empty Drop	55	InnoDB	utf8_general_ci	16.0 KiB	-

DEPARTMENT TABLE :-

deptID	dept_name
D001	IT
D002	CS
D003	CIVIL
D004	MECHANICAL
D005	APPLIED
D006	EEE
D007	EC
D008	MISCELLANEOUS

EXTRAS TABLE :-

class_name	floor_no	building_name	deptID
Heat Engines Lab(ME)	Ground floor	KE BLOCK	D004
Project Fabrication and Display Room	Ground floor	KE BLOCK	D008
Electrical Workshop(EEE)	Ground floor	KE BLOCK	D006
Physical Education	Ground floor	KE BLOCK	D008
Project Display Room(CE)	Ground floor	KE BLOCK	D003
Survey Lab(CE)	Ground floor	KE BLOCK	D003
Civil Workshop(CE)	Ground floor	KE BLOCK	D003
Hydraulic Machines Lab(ME)	Ground floor	KE BLOCK	D004
Chapel	Ground floor	KE BLOCK	D008
Main Lobby	Ground floor	KE BLOCK	D008
Indoor Badminton Court	Ground floor	KE BLOCK	D008
Metalurgical Testing Lab	1st floor	KE BLOCK	D008
Language Lab	1st floor	KE BLOCK	D008
Computer Application Lab	1st floor	KE BLOCK	D008
Mechanical Measurements Lab(ME)	1st floor	KE BLOCK	D004
CAD/CAM Lab(ME)	1st floor	KE BLOCK	D004
CNC Room(ME)	1st floor	KE BLOCK	D004

class_name	floor_no	building_name	deptID
SYCAMORE LAB	3rd floor	KE BLOCK	D001
STAFFROOM 1 (MECH)	3rd floor	KE BLOCK	D004
TUTORIAL HALL 3	3rd floor	KE BLOCK	D008
TUTORIAL HALL 4	3rd floor	KE BLOCK	D008
STAFFROOM 2 (MECH)	3rd floor	KE BLOCK	D004
DEPT LIBRARY (MECH)	3rd floor	KE BLOCK	D004
DEPT CONFERENCE ROOM (MECH)	3rd floor	KE BLOCK	D004
DRAWING HALL 1	3rd floor	KE BLOCK	D008
DRAWING HALL 2	3rd floor	KE BLOCK	D008
STAFFROOM 3 (MECH)	3rd floor	KE BLOCK	D004
STAFFROOM (EEE)	2nd floor	KE BLOCK	D006
STAFFROOM (IT)	2nd floor	KE BLOCK	D001
ADVANCED ELECTRICAL MACHINES LAB	2nd floor	KE BLOCK	D008
ELECTRICAL MACHINES LAB (EEE)	2nd floor	KE BLOCK	D006
POWER ELECTRONICS LAB	2nd floor	KE BLOCK	D008
SIMULATION LAB (EEE)	2nd floor	KE BLOCK	D006
Heat Engine Lab(Computerised Engine test)	Ground floor	KE BLOCK	D008
KLEINROCK LAB	2nd floor	PG BLOCK	D008
TURNING LAB	2nd floor	PG BLOCK	D008
ELECTRONICS AND ELECTRICALS WORKSHOP	2nd floor	MAIN BUILDING	D006
STAFFROOM 3 (ECE)	2nd floor	MAIN BUILDING	D007
SIGNAL PROCESSING LAB	2nd floor	MAIN BUILDING	D008
STAFFROOM 4 (EC)	2nd floor	MAIN BUILDING	D007
COMMUNICATION ENGINEERING	2nd floor	MAIN BUILDING	D007
SEMINAR HALL/LIBRARY (EC)	2nd floor	MAIN BUILDING	D007
CENTRAL COMPUTING FACILITY	2nd floor	MAIN BUILDING	D008
LOGIC DESIGN LAB	2nd floor	MAIN BUILDING	D008
EMBEDDED SYSTEM LAB	2nd floor	MAIN BUILDING	D007
STAFFROOM 1 (EC)	2nd floor	MAIN BUILDING	D007
STAFFROOM 2 (EC)	2nd floor	MAIN BUILDING	D007
SIGNAL AND SYSTEM LAB	2nd floor	MAIN BUILDING	D008
MULTIMEDIA HALL	Ground floor	MAIN BUILDING	D008
SUNYA LAB	Ground floor	MAIN BUILDING	D008
STAFFROOM (BASIC SCIENCE)	Ground floor	MAIN BUILDING	D008
ALETHEA LIBRARY	Ground floor	MAIN BUILDING	D008
RECEPTION	Ground floor	MAIN BUILDING	D008
CHAPEL	Ground floor	MAIN BUILDING	D008

class_name	floor_no	building_name	deptID
SUNYA LAB	Ground floor	MAIN BUILDING	D008
STAFFROOM (BASIC SCIENCE)	Ground floor	MAIN BUILDING	D008
ALETHEA LIBRARY	Ground floor	MAIN BUILDING	D008
RECEPTION	Ground floor	MAIN BUILDING	D008
CHAPEL	Ground floor	MAIN BUILDING	D008
PRINCIPAL OFFICE	Ground floor	MAIN BUILDING	D008
OFFICE	Ground floor	MAIN BUILDING	D008
DIRECTOR OFFICE	Ground floor	MAIN BUILDING	D008
VICE PRINCIPAL OFFICE	Ground floor	MAIN BUILDING	D008
BOARD ROOM	Ground floor	MAIN BUILDING	D008
FINANCE	Ground floor	MAIN BUILDING	D008
RAJAGIRI RESEARCH & CONSULTANCY CENTRE(CETA)	Ground floor	MAIN BUILDING	D008
DINING ROOM 2	4th floor	KE BLOCK	D008
DINING ROOM 1	3rd floor	KE BLOCK	D008
Ladies Washroom	ALL floors	KE BLOCK	NULL
Mens Washroom	ALL floors	KE BLOCK	NULL
Machine Tools Lab(ME)	1st floor	KE BLOCK	D004
Mechanical Workshop(ME)	1st floor	KE BLOCK	D004
Transportation Lab(CE)	1st floor	KE BLOCK	D003
Environmental Lab(CE)	1st floor	KE BLOCK	D003
Mechanical Systems Lab(ME)	1st floor	KE BLOCK	D004
Staff room(EEE)	2nd floor	KE BLOCK	D006
Staff room(IT)	2nd floor	KE BLOCK	D001
ULYSSES LAB	1st floor	MAIN BUILDING	D008
BOHR LAB	1st floor	MAIN BUILDING	D008
STAFFROOM 4 (CS)	1st floor	MAIN BUILDING	D002
HEISENBERG LAB	1st floor	MAIN BUILDING	D008
PHOTON LAB	1st floor	MAIN BUILDING	D008
QUANTUM LAB	1st floor	MAIN BUILDING	D008
CETA	1st floor	MAIN BUILDING	D008

ROUTEWIZ_1_TABLE :-

deptID	LH_no	class_name	floor_no	building_name
D006	LH 4	S8 EE	2nd floor	KE BLOCK
D006	LH 5	S6 EE	2nd floor	KE BLOCK
D006	LH 6	S4 EE	2nd floor	KE BLOCK
D002	LH 5	S4 CS(BETA)	1st floor	MAIN BUILDING
D002	LH 4	S4 CS(ALPHA)	1st floor	MAIN BUILDING
D002	LH 6	S4 CS(GAMMA)	1st floor	MAIN BUILDING
D002	LH 2	S8 CS(BETA)	1st floor	MAIN BUILDING
D002	LH 1	S8 CS(ALPHA)	1st floor	MAIN BUILDING
D002	LH 3	S8 CS(GAMMA)	1st floor	MAIN BUILDING
D002	LH 7	S6 CS(ALPHA)	1st floor	MAIN BUILDING
D002	LH 8	S6 CS(BETA)	1st floor	MAIN BUILDING
D002	LH 9	S6 CS(GAMMA)	1st floor	MAIN BUILDING
D001	LH 25	S2 CSBS	3rd floor	MAIN BUILDING
D004	LH 26	S2 MECH(ALPHA)	3rd floor	MAIN BUILDING
D001	LH 27	S2 AD	3rd floor	MAIN BUILDING
D003	LH 24	S2 CIVIL	3rd floor	MAIN BUILDING
D006	LH 23	S2 EE	3rd floor	MAIN BUILDING
D005	LH 22	S2 APPLIED	3rd floor	MAIN BUILDING
D007	LH 35	S2 EC(GAMMA)	3rd floor	MAIN BUILDING
D007	LH 34	S2 EC(BETA)	3rd floor	MAIN BUILDING
D007	LH 33	S2 EC(ALPHA)	3rd floor	MAIN BUILDING
D002	LH 32	S2 CS(GAMMA)	3rd floor	MAIN BUILDING
D002	LH 31	S2 CS(BETA)	3rd floor	MAIN BUILDING
D002	LH 30	S2 CS(ALPHA)	3rd floor	MAIN BUILDING
D004	LH 29	S2 MECH(BETA)	3rd floor	MAIN BUILDING
D001	LH 28	S2 IT	3rd floor	MAIN BUILDING
D001	LH 15	S8 IT	4th floor	KE BLOCK
D003	LH 16	S8 CIVIL	4th floor	KE BLOCK
D003	LH 17	S6 CIVIL	4th floor	KE BLOCK
D003	LH 18	S4 CIVIL	4th floor	KE BLOCK
D001	LH 13	S4 IT	4th floor	KE BLOCK

deptID	LH_no	class_name	floor_no	building_name
D001	LH 3	S6 AD	2nd floor	KE BLOCK
D001	LH 2	S4 AD	2nd floor	KE BLOCK
D007	LH 16	S6 EC(ALPHA)	2nd floor	MAIN BUILDING
D007	LH 18	S6 EC(GAMMA)	2nd floor	MAIN BUILDING
D007	LH 15	S8 EC(ALPHA)	2nd floor	MAIN BUILDING
D007	LH 14	S8 EC(BETA)	2nd floor	MAIN BUILDING
D007	LH 13	S8 EC(GAMMA)	2nd floor	MAIN BUILDING
D005	LH 12	S8 APPLIED	2nd floor	MAIN BUILDING
D005	LH 11	S6 APPLIED	2nd floor	MAIN BUILDING
D005	LH 10	S4 APPLIED	2nd floor	MAIN BUILDING
D007	LH 21	S4 EC(GAMMA)	2nd floor	MAIN BUILDING
D007	LH 20	S4 EC(BETA)	2nd floor	MAIN BUILDING
D007	LH 19	S4 EC(ALPHA)	2nd floor	MAIN BUILDING
D001	LH 1	S4 CSBS	2nd floor	KE BLOCK

3.6 GUI DESIGN

3.6.1 HOMEPAGE

Figure 3.6.1 depicts the RouteWiz homepage. The homepage has a “Let’s Go” button which takes the users to the next page



Figure 3.6.1: RouteWIZ Homepage

3.6.2 SEARCH PAGE

Figure 3.6.2 depicts the search page. The user can enter their destination

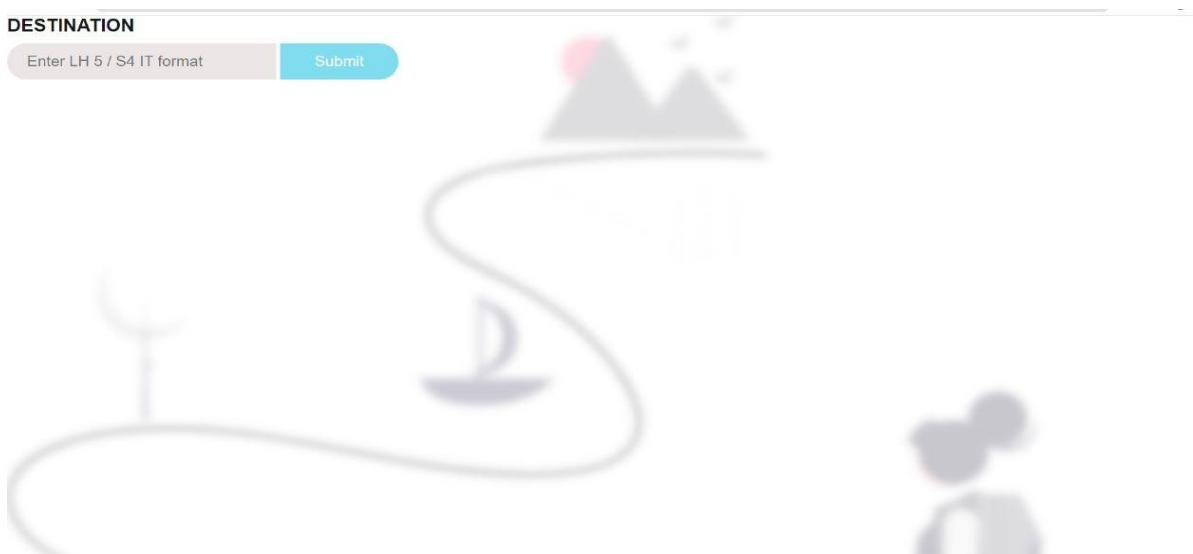


Figure 3.6.2: Search Page

3.6.3 RESULT PAGE

Figure 3.6.3 depicts the result page, where the user can view the location details and the animated map.

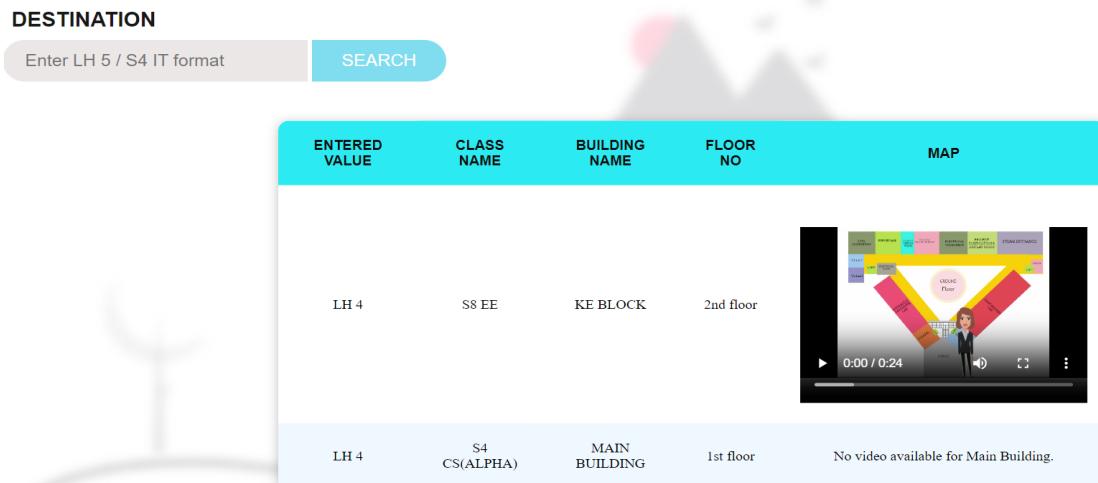


Figure 3.6.3: Result page

3.6.4 MAP

Figure 3.6.4 shows the map

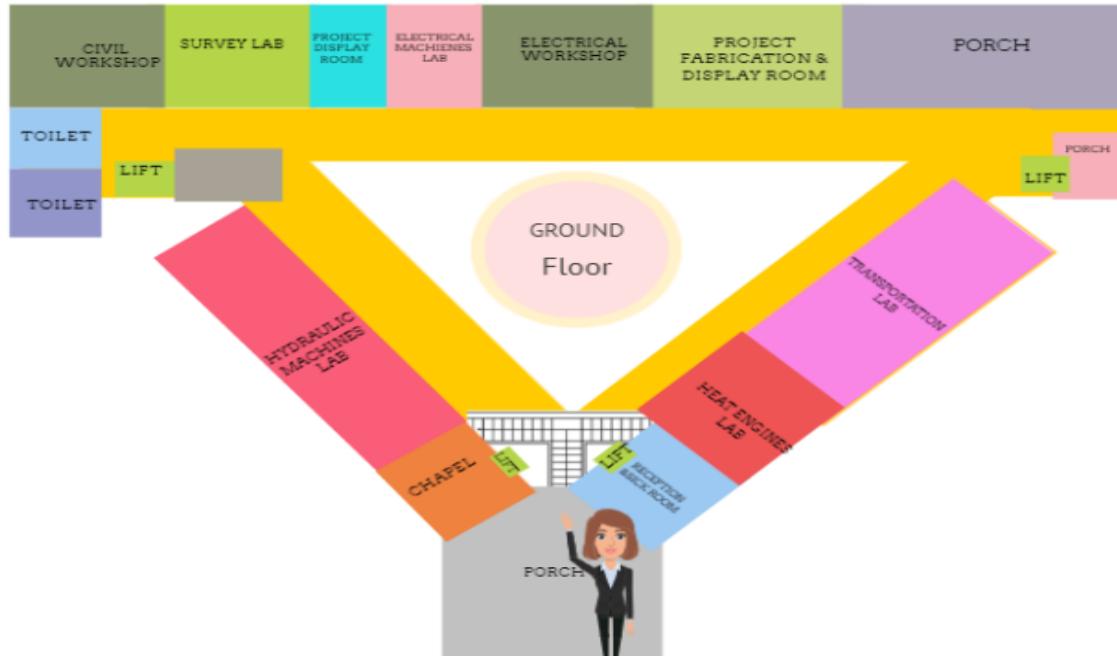


Figure 3.6.4: Map viewed by user

3.7 IMPLEMENTATION REQUIREMENTS AND SCHEDULE

3.7.1 HARDWARE REQUIREMENTS

The selection of hardware configuration is a very important task related to software development, particularly inefficient RAM may adversely affect the speed and correspondingly the efficiency of the entire system. The processor should be powerful to handle all the operations. The hard disk should have sufficient capacity to solve the database and the application. The network should be efficient to handle the communication fast.

1. CPU: i3 Processor
2. Memory: 128 MB
3. Cache: 512KB
4. Floppy Disk. :1.44MB
5. HardDisk:4.3GB
6. Display:15" Monitor
7. Keyboard: Standard108keysEnhancedKeyBoard
8. Mouse: MSSerialMouse

3.7.2 SOFTWARE REQUIREMENTS

1. Operating System: WindowsXP,7,8 or above
2. Front End Tool: HTML,CSS
3. Back End Tool: SQL,PHP
4. IDE: VISUAL STUDIO CODE

CHAPTER 4

RESULTS AND DISCUSSION

The results and discussions of the Indoor Campus Navigation Website with Animated Map for Guidance project demonstrated promising outcomes and valuable insights. The implementation of the interactive animated map received positive feedback from users, who found it intuitive and visually engaging. The constant updation proved effective in providing up-to-date information on events, room availability, and campus changes, enhancing the accuracy and reliability of the navigation system. User testing and feedback helped identify areas for improvement, leading to enhancements in the user interface and accessibility features, making the website more inclusive and user-friendly for individuals with diverse needs. Moreover, the project's successful adaptation to a specific campus environment underscored its scalability potential for other indoor spaces. Discussions on the limitations acknowledged challenges such as data accuracy and GPS restrictions indoors, prompting consideration of alternative technologies for more precise positioning. Overall, the results and discussions highlighted the project's achievement in simplifying indoor navigation, fostering a positive campus experience, and opened avenues for further refinements and broader applications in indoor navigation technology.

CHAPTER 5

CONCLUSION

In conclusion, the Indoor Campus Navigation Website with Animated Map for Guidance project represents an innovative and user-centric solution to tackle the challenges of navigating large and intricate indoor spaces. By leveraging modern web technologies, the project aims to provide campus visitors and occupants with an enhanced navigation experience. The interactive and visually appealing animated map offers step-by-step directions, optimizing routes for efficiency and convenience. The integration of live data ensures accuracy and relevancy, while accessibility features foster inclusivity for all users. Although the project's scope is limited to a specific campus or building, its flexibility allows for potential adaptation to various indoor environments. Through meticulous testing and user feedback, the website strives to offer a user-friendly interface and meet the diverse needs of its audience.

In essence, the Indoor Campus Navigation Website with Animated Map for Guidance project seeks to streamline navigation, enrich user experiences, and contribute to a more navigable and welcoming indoor campus environment.

CHAPTER 6

REFERENCES

FRONT END

1. <https://youtu.be/6xdHq2YE0g8>
2. <https://youtu.be/elvpvftSyHY>
3. <https://youtu.be/-unASUgYtVI>

APPENDIX A

PSEUDO CODE

WEBPAGE

```
1  <!DOCTYPE html>
2  <html lang="en">
3      <head>
4          <meta charset="UTF-8" />
5          <meta http-equiv="X-UA-Compatible" content="IE=edge" />
6          <meta name="viewport" content="width=device-width, initial-scale=1.0" />
7          <link rel="stylesheet" href="./styles/style.css" />
8
9
10
11      <link rel="preconnect" href="https://fonts.googleapis.com" />
12      <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin />
13      <link rel="preconnect" href="https://fonts.googleapis.com" />
14      <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin />
15      <link rel="preconnect" href="https://fonts.googleapis.com" />
16      <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin />
17      <link
18          href="https://fonts.googleapis.com/css2?family=Montserrat:wght@500&display=swap"
19          rel="stylesheet"
20      />
21      <title>RouteWIZ</title>
22
23      <link rel="stylesheet" href="style.css">
24
25  </head>
26  <style>
27      body {
28          font-family: "Montserrat", sans-serif;
29      }
30  </style>
```

```

<style>
  body {
    font-family: "Montserrat", sans-serif;
  }
</style>

<body>
  <section class="main">
    <div class="container">
      <video class="background-clip" width="320" height="240" muted loop autoplay>
        <source src="Images/INDEX WITH SUB.mp4" type="video/mp4">
        Your browser does not support the video tag.
      </video>

      <div class="content">
        <a href="#about">
          <h1>
            | Routewiz
          </h1>
        </a>
        <div class="search">
          | <a href="search.php">Let's Go!</a>
        </div>
      </div>
    </div>
  </section>

```

```

<section id="about" class="about">
  <h1>About us</h1>
  <div class = 'row'>
    <div class="about-logo">
      
    </div>
    <div class="para">
      <p>Rajagiri is a huge campus ,and sometimes visitors and students find it quite difficult to effectively navigate through the college premises.<br>Routewiz offers a convenient and efficient solution for the same.</p>
    </div>
  </div>
</div>
</section>

```

DATABASE SEARCH FOR LOCATION

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>Search Bar Example</title>
5      <link rel="stylesheet" type="text/css" href="search.css">
6
7      <link rel="stylesheet" type="text/css" href="table.css">
8  </head>
9  <body>
10     <form action="search.php" method="POST">
11         <div name="searchcontainer">
12             <h1>DESTINATION</h1>
13
14             <input type="text" name="query" placeholder="Enter LH 5 / S4 IT format">
15             <input type="submit" name="submit" value="SEARCH">
16
17         </div>
18
19     </form>
20
21
22 </body>
23 </html>
24
25
26
27 <?php
28 // Check if the search query is submitted
29 if (isset($_POST['submit'])) {
30     // Get the search query from the form
31     $query = $_POST['query'];
32
33     // Establish a database connection (assuming MySQL)
34     $servername = "localhost";
35     $username = "root";
36     $password = ""; // Replace with your database password
37     $dbname = "routewizdb";
```

```
$conn = new mysqli($servername, $username, $password, $dbname);

// Check the database connection
if ($conn->connect_error) {
    die("Connection failed: " . $conn->connect_error);
}

// Use prepared statements to prevent SQL injection
$sql1 = "SELECT class_name, building_name, floor_no FROM routewiz_1 WHERE LH_no=?";
$sql2 = "SELECT LH_no, building_name, floor_no FROM routewiz_1 WHERE class_name=?";
$sql3 = "SELECT building_name, floor_no FROM extras WHERE class_name?";

// Prepare and bind the parameters
$stmt1 = $conn->prepare($sql1);
$stmt1->bind_param("s", $query);

$stmt2 = $conn->prepare($sql2);
$stmt2->bind_param("s", $query);

$stmt3 = $conn->prepare($sql3);
$stmt3->bind_param("s", $query);

// Execute the queries
$stmt1->execute();
$result1 = $stmt1->get_result();

$stmt2->execute();
$result2 = $stmt2->get_result();

$stmt3->execute();
$result3 = $stmt3->get_result();

// Display the results
$name="result";
```

```
echo '<div data-name="' . $name . '">';
1 reference
function loadJSONData($filename)
{
    $jsonData = file_get_contents($filename);
    return json_decode($jsonData, true); // Set the second parameter to true to decode as an associative array
}

// Load the JSON data
$videoData = loadJSONData('video.json');

if ($result1->num_rows > 0)
{
    echo "<table>";
    echo "<tr>";
    echo "<th> Entered Value </th>";
    echo "<th> Class Name</th>";
    echo "<th> Building Name</th>";
    echo "<th> Floor No</th>";
    echo "<th> Map </th>";
    echo "</tr>";
    while ($row = $result1->fetch_assoc())
    {
        echo "<tr>";
        echo "<td>" . $query . "</td>";
        echo "<td>" . $row['class_name'] . "</td>";
        echo "<td>" . $row['building_name'] . "</td>";
        echo "<td>" . $row['floor_no'] . "</td>";

        $queryVideoURL = isset($videoData[$query]) ? $videoData[$query] : '';
    }
}
```

```

        echo "<td>";
        if($row['building_name']=="MAIN BUILDING")
        {echo "No video available for Main Building.";}
        else {
            if (!empty($queryVideoURL)) {
                echo '<video width="320" height="240" controls>';
                echo '<source src="' . $queryVideoURL . '" type="video/mp4">';
                echo "Your browser does not support the video tag.";
                echo '</video>';
            } else {
                echo "No video available for this query.";
            }
            echo "</td>";
        }
        echo"</tr>";
    }

    echo "</table>";
}
elseif ($result2->num_rows > 0)
{
    echo "<table>";
    echo "<tr>";
    echo "<th> Entered Value </th>";
    echo "<th> LH No</th>";
    echo "<th> Building Name</th>";
    echo "<th> Floor No</th>";
    echo "<th> Map </th>";
    echo "</tr>";
    while ($row = $result2->fetch_assoc())
    {
        echo "<tr>";
        echo "<td>" . $query. "</td>";
        echo "<td>" . $row['LH_no']. "</td>";
        echo "<td>" . $row['building_name']. "</td>";
        echo "<td>" . $row['floor_no']. "</td>";
    }
}

```

```
$queryVideoURL = isset($videoData[$query]) ? $videoData[$query] : '';

// Display the video element
echo "<td>";
if($row['building_name']=="MAIN BUILDING")
{echo "No video available for Main Building.";}
else {
    if (!empty($queryVideoURL)) {
        echo '<video width="320" height="240" controls>';
        echo '<source src="' . $queryVideoURL . '" type="video/mp4">';
        echo "Your browser does not support the video tag.";
        echo '</video>';
    } else {
        echo "No video available for this query.";
    }
    echo "</td>";
}
echo "</tr>";
}

echo "</table>";
}

elseif ($result3->num_rows > 0)
{
    echo "<table>";
    echo "<tr>";
    echo "<th> Entered Value </th>";
    echo "<th> Building Name</th>";
    echo "<th> Floor No</th>";
    echo "<th> Map </th>";
    echo "</tr>";
    while ($row = $result3->fetch_assoc())
    {
        echo "<tr>";
        echo "<td>" . $row['Entered Value'] . "</td>";
        echo "<td>" . $row['Building Name'] . "</td>";
        echo "<td>" . $row['Floor No'] . "</td>";
        echo "<td><img alt='Map icon' src='mapIcon.png'></td>";
        echo "</tr>";
    }
}
```

```

echo "<tr>";
echo "<td> " . $query. "</td>";
echo "<td> " . $row['building_name']. "</td>";
echo "<td> " . $row['floor_no']. "</td>";
$queryVideoURL = isset($videoData[$query]) ? $videoData[$query] : '';

// Display the video element
echo "<td>";
if($row['building_name']=="MAIN BUILDING")
{echo "No video available for Main Building.";}
else
{
    if (!empty($queryVideoURL))
    [
        echo '<video width="320" height="240" controls>';
        echo '<source src="' . $queryVideoURL . '" type="video/mp4">';
        echo "Your browser does not support the video tag.";
        echo '</video>';
    ] else
    {
        echo "No video available for this query.";
    }
    echo "</td>";
}
| echo "</tr>";
}
echo "</table>";
}

else
{
    echo "No results found for LH No: $query<br>";
}
echo '</div>';

}
echo "</table>";
}

else
{
    echo "No results found for LH No: $query<br>";
}
echo '</div>';

// Close the database connection
$stmt1->close();
$stmt2->close();
$conn->close();
}
?>

```

JSON ARRAY OF VIDEO SOURCES

```
{
    "Chapel": "animation/Chapel.mp4",
    "Project Fabrication and Display Room": "animation/Project Fabrication and Display Room.mp4",
    "Electrical Workshop(EEE)": "animation/Electrical Workshop(EEE).mp4",
    "Survey Lab(CE)": "animation/Survey Lab(CE).mp4",
    "S6 AD": "animation/S6 AD.mp4",
    "LH 3": "animation/S6 AD.mp4",
    "S4 CSBS": "animation/S4 CSBS.mp4",
    "LH 1": "animation/S4 CSBS.mp4",
    "Heat Engines Lab(ME)": "animation/Heat Engines Lab(ME).mp4",
    "Metallurgical Testing Lab": "animation/Metallurgical Testing Lab.mp4",
    "Mechanical Measurements Lab(ME)": "animation/Mechanical Measurements Lab(ME).mp4",
    "CNC Room(ME)": "animation/CNC Room(ME).mp4",
    "Computer Application Lab": "animation/Computer Application Lab.mp4",
    "CAD/CAM Lab(ME)": "animation/CAM Lab(ME).mp4",
    "Transportation Lab(CE)": "animation/Transportation Lab(CE).mp4",
    "Language Lab": "animation/Language Lab.mp4",
    "Mechanical Systems Lab(ME)": "animation/Mechanical Systems Lab(ME).mp4",
    "Hydraulic Machines Lab(ME)": "animation/Hydraulic Machines Lab(ME).mp4",
    "Mechanical Workshop(ME)": "animation/Mechanical Workshop(ME).mp4",
    "Machine Tools Lab(ME)": "animation/Machine Tools Lab(ME).mp4",
    "S4 AD": "animation/S4 AD.mp4",
    "LH 2": "animation/S4 AD.mp4",
    "ELECTRICAL MACHINES LAB (EEE)": "animation/ELECTRICAL MACHINES LAB (EEE).mp4",
    "Microprocessor Lab": "animation/Microprocessor Lab.mp4",
    "POWER ELECTRONICS LAB": "animation/POWER ELECTRONICS LAB.mp4",
    "S4 EE": "animation/S4 EE.mp4",
    "LH 6": "animation/S4 EE.mp4",
    "S8 EE": "animation/S8 EE.mp4",
    "LH 4": "animation/S8 EE.mp4",
    "S6 EE": "animation/S6 EE.mp4",
    "LH 5": "animation/S6 EE.mp4",
    "SIMULATION LAB (EEE)": "animation/SIMULATION LAB (EEE).mp4",
    "DEPT CONFERENCE ROOM (MECH)": "animation/DEPT CONFERENCE ROOM (MECH).mp4",
    "DEPT LIBRARY (MECH)": "animation/DEPT LIBRARY (MECH).mp4",
    "DRAWING HALL 1": "animation/DRAWING HALL 1.mp4",
}
```

"DINING ROOM 1":"animation/DINING HALL 1.mp4",
"S4 MECH(ALPHA)":"animation/S4 MECH(ALPHA).mp4",
"LH 12":"animation/S4 MECH(ALPHA).mp4",
"S4 MECH(BETA)":"animation/S4 MECH(BETA).mp4",
"LH 11":"animation/S4 MECH(BETA).mp4",
"S6 MECH(ALPHA)":"animation/S6 MECH(ALPHA).mp4",
"LH 9":"animation/S6 MECH(ALPHA).mp4",
"S6 MECH(BETA)":"animation/S4 MECH(BETA).mp4",
"LH 10":"animation/S4 MECH(BETA).mp4",
"S8 MECH(BETA)":"animation/S8 MECH(BETA).mp4",
"LH 8":"animation/S8 MECH(BETA).mp4",
"S8 MECH(ALPHA)":"animation/S8 MECH(ALPHA).mp4",
"LH 7":"animation/S8 MECH(ALPHA).mp4",
"STAFFROOM 1 (MECH)":"animation/STAFFROOM 1 (MECH).mp4",
"STAFFROOM 2 (MECH)":"animation/STAFFROOM 2 (MECH).mp4",
"STAFFROOM 3 (MECH)":"animation/STAFFROOM 3 (MECH).mp4",
"SYCAMORE LAB":"animation/SYCAMORE LAB.mp4",
"TUTORIAL HALL 3":"animation/TUTORIAL HALL 3.mp4",
"TUTORIAL HALL 4":"animation/TUTORIAL HALL 4.mp4",
"CONFERENCE ROOM":"animation/CONFERENCE ROOM.mp4",
"DINING ROOM 2":"animation/DINING ROOM 2.mp4",
"LH 19":"animation/LH 19.mp4",
"LH 20":"animation/LH 20.mp4",
"EXAMINATION CELL":"animation/EXAMINATION CELL.mp4",
"EXAM CONTROL ROOM":"animation/EXAM CONTROL ROOM.mp4",
"Environmental Lab(CE)":"animation/ENVIRONMENTAL LAB.mp4",
"S4 CIVIL":"animation/S4 CE.mp4",
"LH 18":"animation/S4 CE.mp4",
"Ladies Washroom":"animation/Ladies Washroom.mp4",
"Mens Washroom":"animation/Mens Washroom.mp4",
"S4 IT":"animation/S4 IT.mp4",
"LH 13":"animation/S4 IT.mp4",
"S6 CIVIL":"animation/S6 CE.mp4",
"LH 17":"animation/S6 CE.mp4",
"S8 CIVIL":"animation/S8 CIVIL.mp4",
"LH 16":"animation/S8 CIVIL.mp4",

```
"S8 IT":"animation/S8 IT.mp4",
"LH 15":"animation/LH 15.mp4",
"STAFFROOM 1 (CIVIL)":"animation/STAFFROOM 1 (CIVIL).mp4",
"STAFFROOM 2 (CIVIL)":"animation/STAFFROOM 2 (CIVIL).mp4",
"STAFFROOM 2 (IT)":"animation/STAFFROOM 2 (IT).mp4",
"TUTORIAL HALL 6":"animation/TUTORIAL HALL 6.mp4",
"DEPT LIBRARY (CIVIL)":"animation/DEPT LIBRARY (CIVIL).mp4",
"TUTORIAL HALL 5":"animation/TUTORIAL HALL 5.mp4",
"SEMINAR HALL (CIVIL)":"animation/SEMINAR HALL (CIVIL).mp4",
"STAFFROOM (EEE)":"animation/STAFFROOM (EEE).mp4",
"STAFFROOM (IT)":"animation/STAFFROOM (IT).mp4",
"DEPT CONFERENCE ROOM":"animation/DEPT CONFERENCE ROOM.mp4",
"DRAWING HALL 2":"animation/DRAWING HALL 2.mp4",
"S6 IT":"animation/S6 IT.mp4",
"Civil Workshop(CE)":"animation/Civil Workshop(CE).mp4",
"PRAYER ROOM":"animation/PRAYER ROOM.mp4",
"Physical Education":"animation/Physical Education.mp4"
```

APPENDIX B

SAMPLE SCREENSHOTS

WEBPAGE



About us



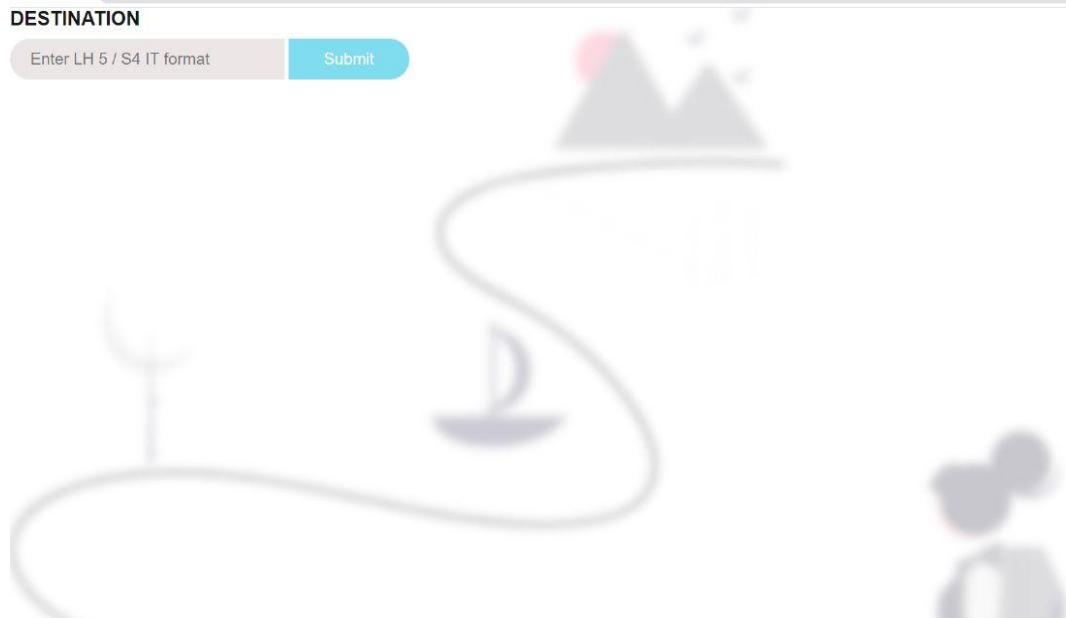
Rajagiri is a huge campus ,and sometimes visitors and students find it quite difficult to effectively navigate through the college premises.

RouteWIZ offers a convenient and efficient solution for the same.

DESTINATION

Enter LH 5 / S4 IT format

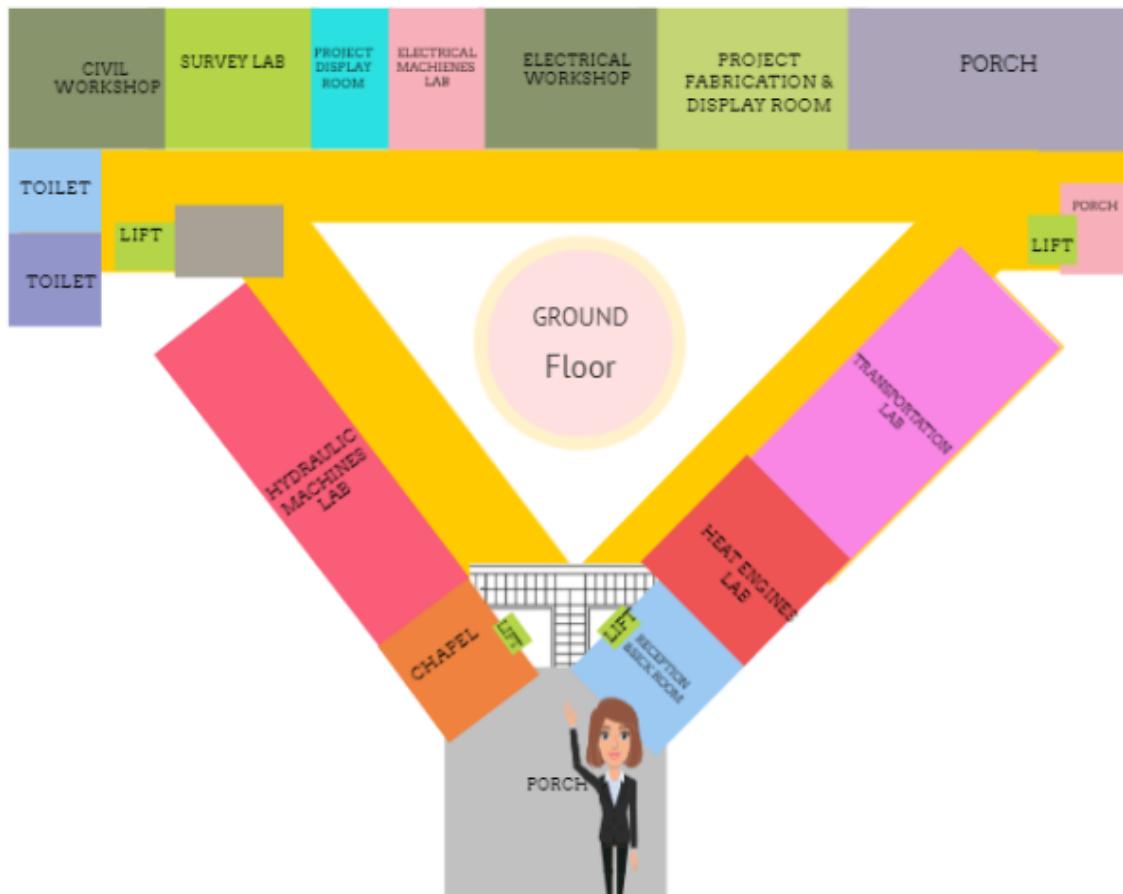
Submit

**DESTINATION**

Enter LH 5 / S4 IT format

SEARCH

ENTERED VALUE	CLASS NAME	BUILDING NAME	FLOOR NO	MAP
LH 4	S8 EE	KE BLOCK	2nd floor	
LH 4	S4 CS(ALPHA)	MAIN BUILDING	1st floor	No video available for Main Building.

ANIMATED MAP

APPENDIX C

SLIDES



Problem Statement

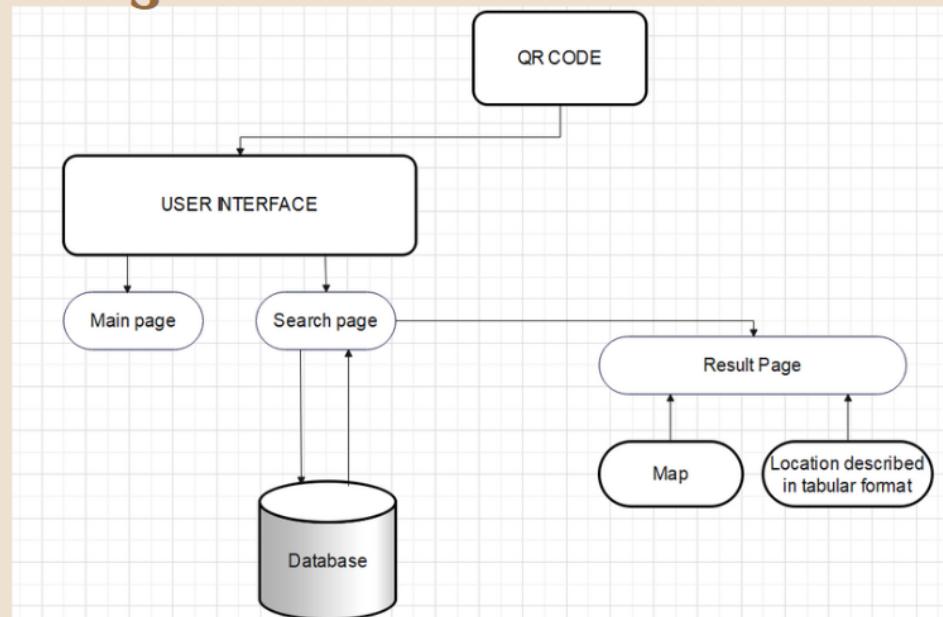
Rajagiri is a huge campus ,and sometimes vistiors and students find it quite difficult to effectively navigate through the college premises.Our website offers a convenient and efficient solution for the same

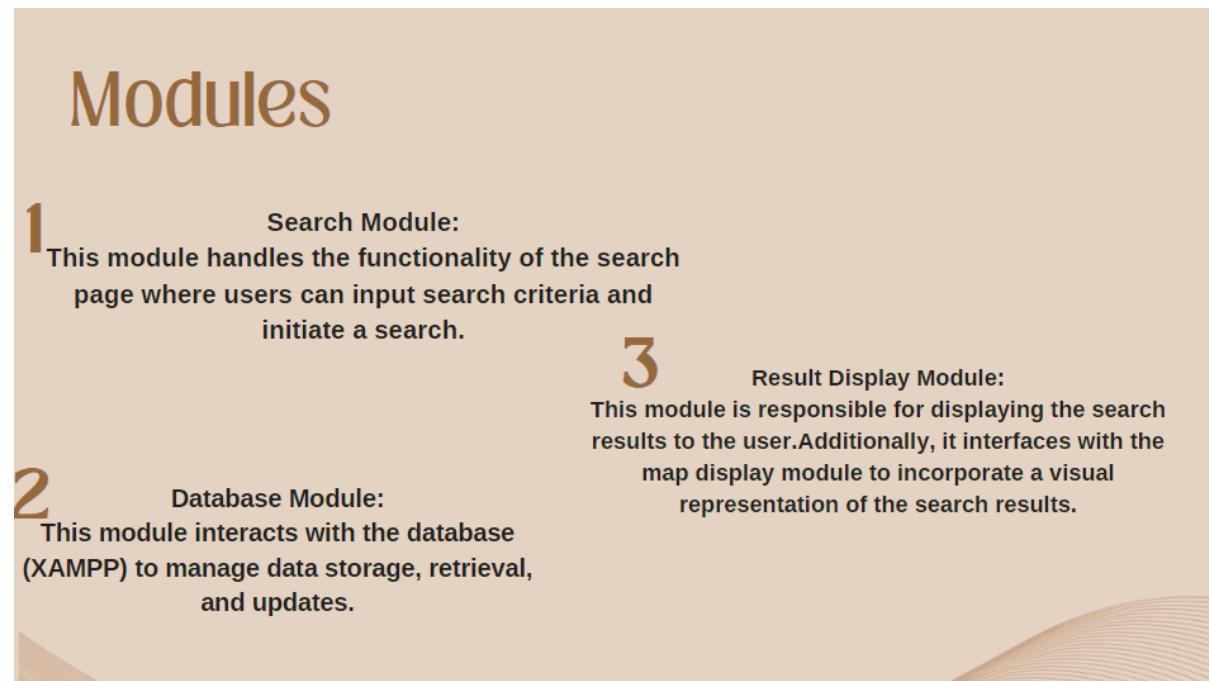
The map shows a detailed layout of a campus with various buildings, roads, and landmarks. A specific route is highlighted with a blue line and arrows, starting from one part of the campus and ending at another. The map includes labels for "Hostel", "Bus", and "Parking".

Applications

- 1 Routewiz website is an innovative and user-friendly website for navigating indoor spaces within a campus
- 2 Particularly helpful for new students or visitors who are unfamiliar with the campus layout.
- 3 It provides information on accessible routes, lifts and other facilities that cater to individuals with disabilities
- 4 It also saves time and effort

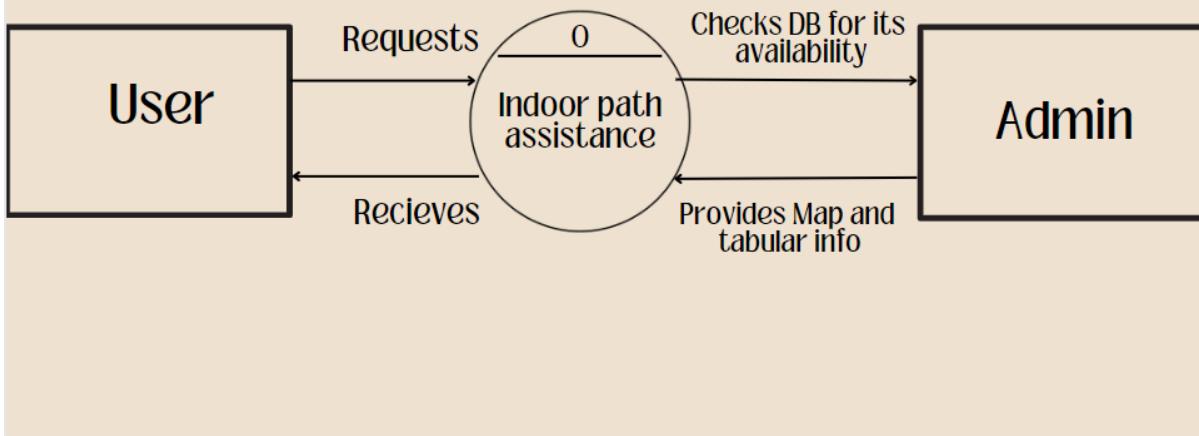
Block Diagram





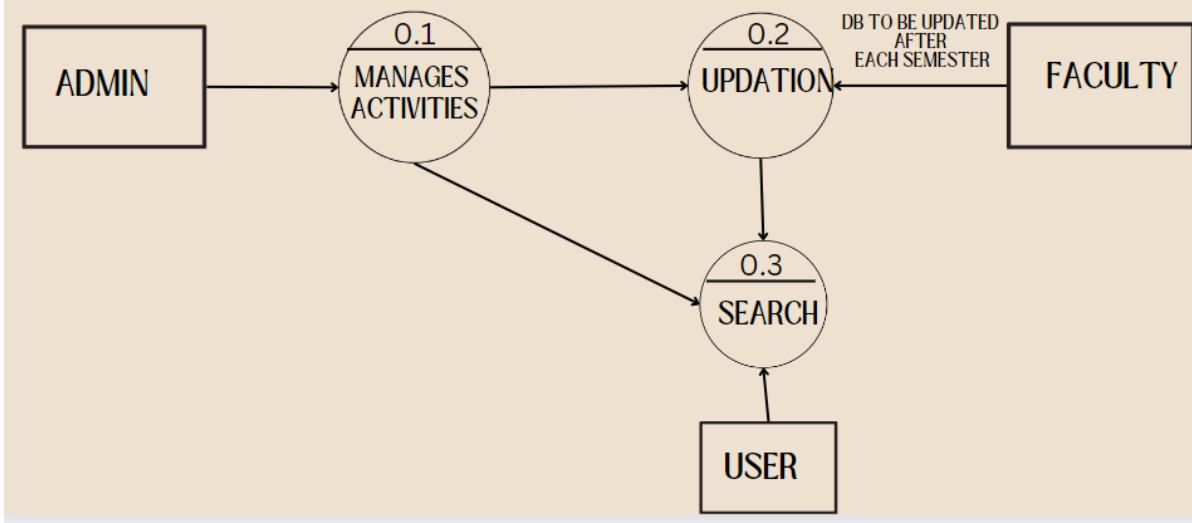
DATA FLOW DIAGRAM

LEVEL 0



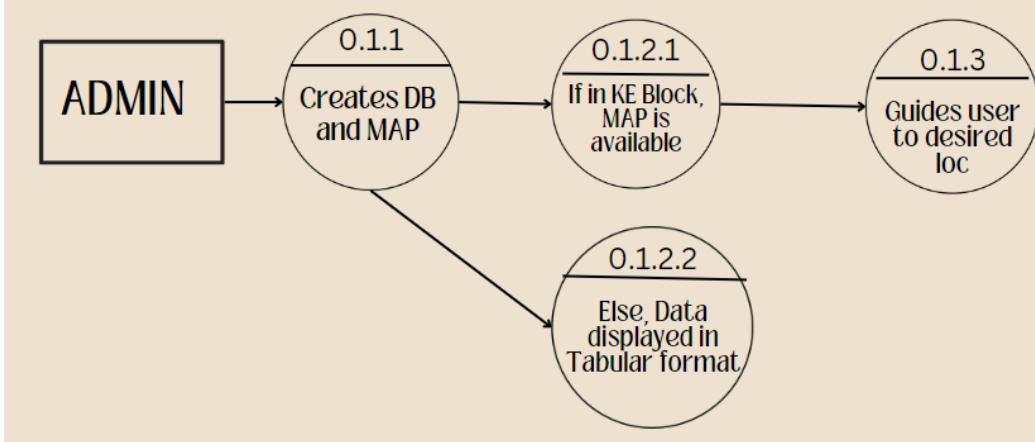
DATA FLOW DIAGRAM

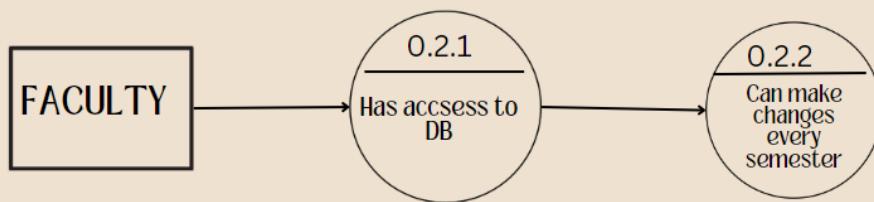
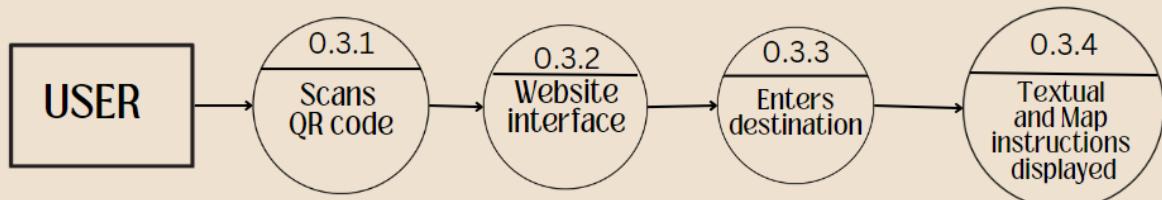
LEVEL 1



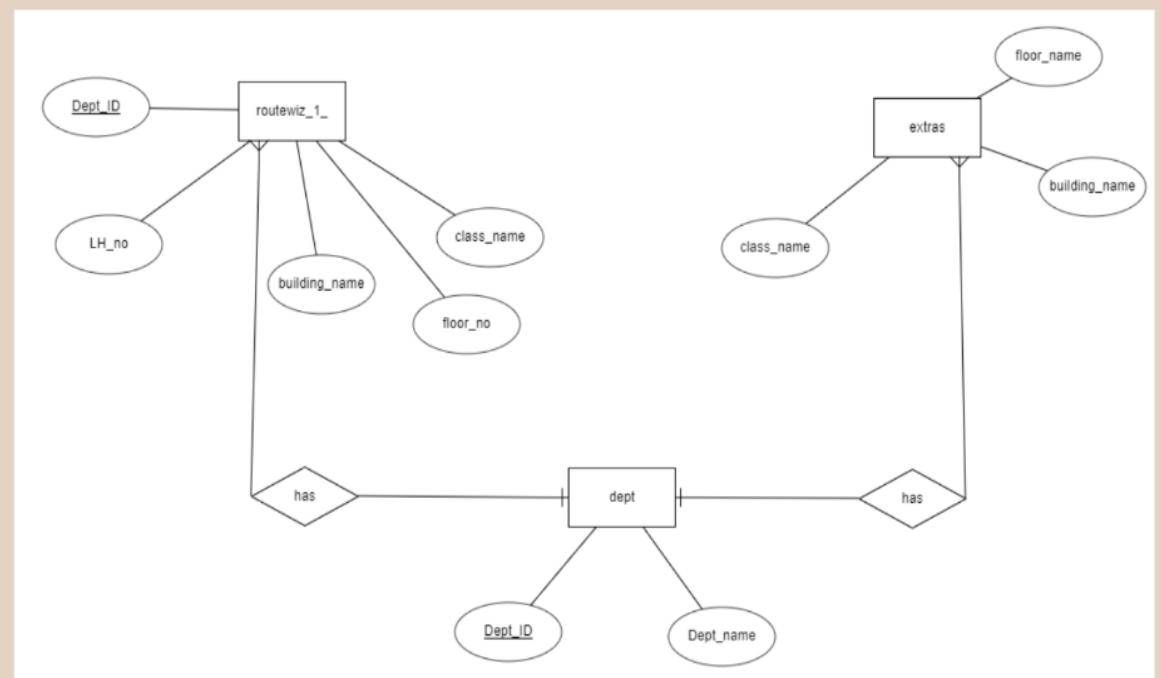
DATA FLOW DIAGRAM

LEVEL 2



DATA FLOW DIAGRAM**LEVEL 2****DATA FLOW DIAGRAM****LEVEL 2**

ER DIAGRAM



IMPLEMENTATION DETAILS

IDE :- VISUAL STUDIO CODE

DATABASE CREATION :- XAMPP

ANIMATION:- ANIMAKER



DATABASE DESIGN

Database design is done using XAMPP, Sublime text

There are 3 tables :- routewiz_1_, extras, dept

routewiz_1_- Attributes: {Dept_ID(FK), Lh_no, class_name, floor_no, building_name }

extras:- Attributes: { Dept_ID(FK), class_name, floor_no, building_name }

dept:- Attributes: { Dept_ID(PK), Dept_name }

SAMPLE WORK

Database:-

Table	Action	Rows	Type	Collation	Size	Overhead
dept		8	InnoDB	utf8_general_ci	16.0 Kib	-
extras		112	InnoDB	utf8_general_ci	16.0 Kib	-
routewiz_1_		55	InnoDB	utf8_general_ci	16.0 Kib	-

Dept table

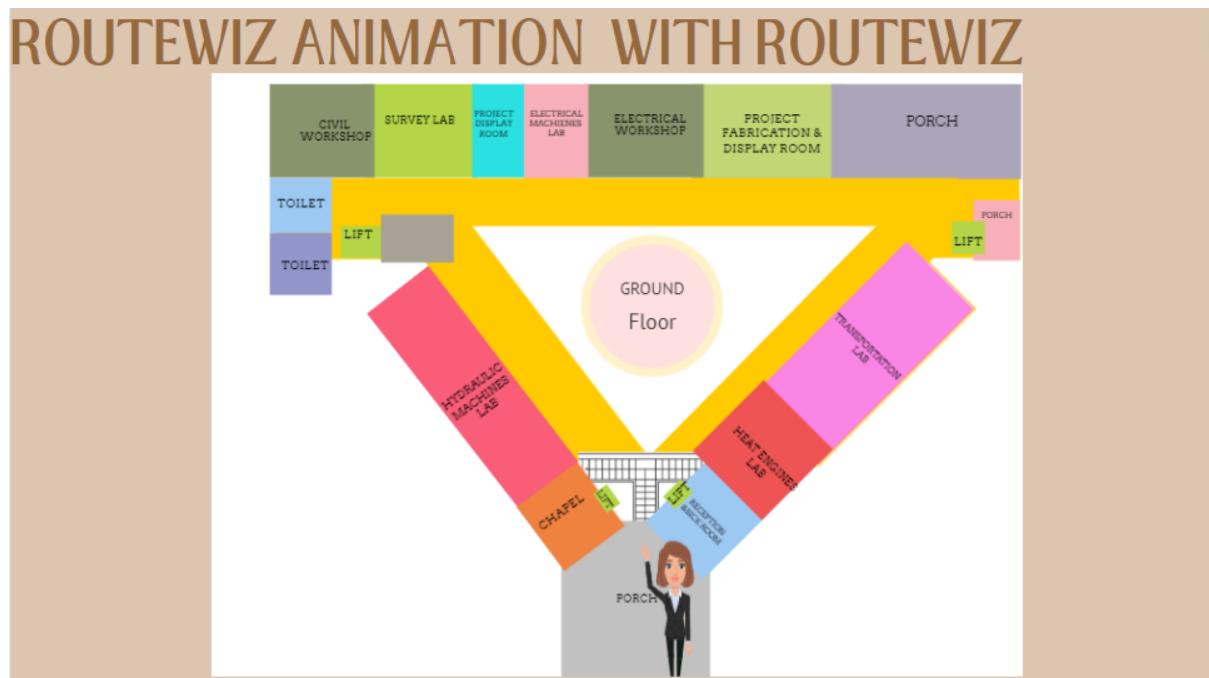
deptID	dept_name
D001	IT
D002	CS
D003	CIVIL
D004	MECHANICAL
D005	APPLIED
D006	EEE
D007	EC
D008	MISCELLANEOUS

Extras table

class_name	building_name	floor_no	deptID
Metalurgical Testing Lab	KE BLOCK	1st floor	D008
Language Lab	KE BLOCK	1st floor	D008
Computer Application Lab	KE BLOCK	1st floor	D008
Mechanical Measurements Lab(ME)	KE BLOCK	1st floor	D004
CAD/CAM Lab(ME)	KE BLOCK	1st floor	D004
CNC Room(ME)	KE BLOCK	1st floor	D004
Advanced Machine Tools Lab(ME)	KE BLOCK	1st floor	D004
Machine Tools Lab(ME)	KE BLOCK	1st floor	D004
Mechanical Workshop(ME)	KE BLOCK	1st floor	D004
Transportation Lab(CE)	KE BLOCK	1st floor	D003
Environmental Lab(CE)	KE BLOCK	1st floor	D003
Mechanical Systems Lab(ME)	KE BLOCK	1st floor	D004
ULYSSES LAB	MAIN BUILDING	1st floor	D008
BOHR LAB	MAIN BUILDING	1st floor	D008
STAFFROOM 4 (CS)	MAIN BUILDING	1st floor	D002
HEISENBERG LAB	MAIN BUILDING	1st floor	D008
PHOTON LAB	MAIN BUILDING	1st floor	D008

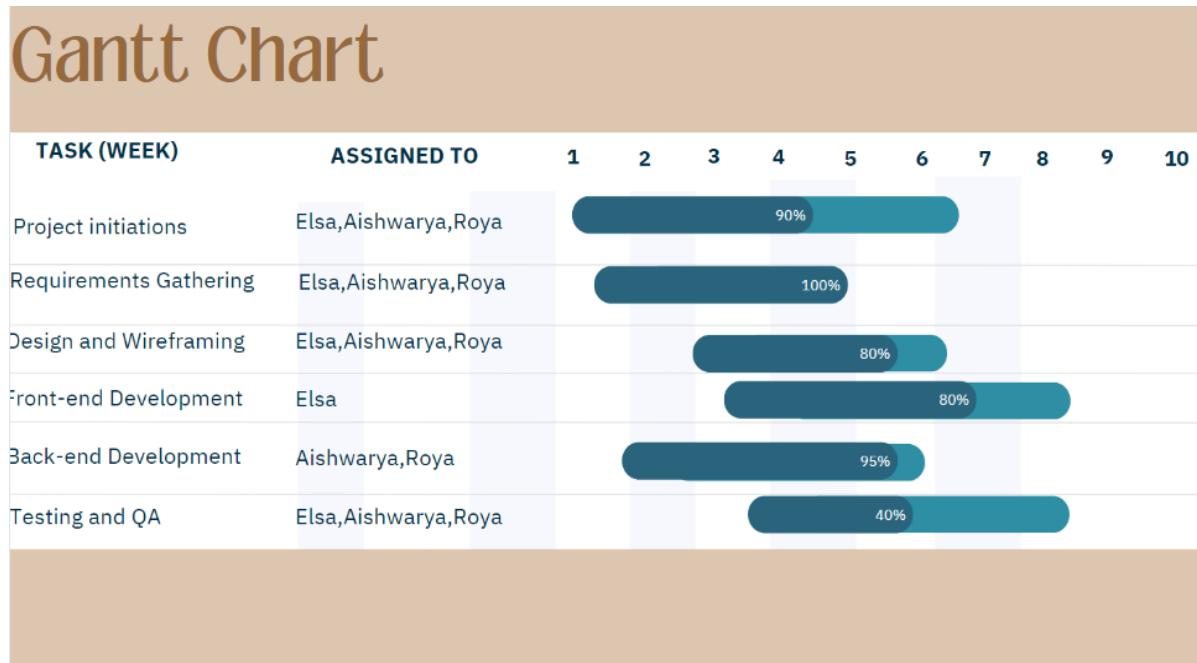
Routewiz table

deptID	LH_no	class_name	floor_no	building_name
D006	LH 4	S8 EE	2nd floor	KE BLOCK
D006	LH 5	S6 EE	2nd floor	KE BLOCK
D006	LH 6	S4 EE	2nd floor	KE BLOCK
D002	LH 5	S4 CS(BETA)	1st floor	MAIN BUILDING
D002	LH 4	S4 CS(ALPHA)	1st floor	MAIN BUILDING
D002	LH 6	S4 CS(GAMMA)	1st floor	MAIN BUILDING
D002	LH 2	S8 CS(BETA)	1st floor	MAIN BUILDING
D002	LH 1	S8 CS(ALPHA)	1st floor	MAIN BUILDING
D002	LH 3	S8 CS(GAMMA)	1st floor	MAIN BUILDING
D002	LH 7	S6 CS(ALPHA)	1st floor	MAIN BUILDING
D002	LH 8	S6 CS(BETA)	1st floor	MAIN BUILDING
D002	LH 9	S6 CS(GAMMA)	1st floor	MAIN BUILDING
D001	LH 25	S2 CSBS	3rd floor	MAIN BUILDING
D004	LH 26	S2 MECH(ALPHA)	3rd floor	MAIN BUILDING



DEMO





Conclusion

Routewiz website is an innovative and user-friendly website for navigating indoor spaces within a campus. It is particularly helpful for new students or visitors who are unfamiliar with the campus layout.



THANK YOU

APPENDIX D

RAJAGIRI SCHOOL OF ENGINEERING AND TECHNOLOGY (AUTONOMOUS)

DEPARTMENT OF INFORMATION TECHNOLOGY PROGRAMME: ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

VISION

To evolve into a department of excellence in information technology by the creation and exchange of knowledge through leading-edge research, innovation and services which will in turn contribute towards solving complex societal problems and thus building a peaceful and prosperous mankind.

MISSION

To impart high-quality technical education, research training, professionalism and strong ethical values in the young minds for ensuring their productive careers in industry and academia so as to work with a commitment to the betterment of mankind .

PROGRAM EDUCATIONAL OBJECTIVES (PEO)

Graduates of Artificial Intelligence and Data Science program shall

PEO 1: Have strong technical foundation for successful professional careers and to evolve as key-players / entrepreneurs in the field of information technology.

PEO 2: Excel in analyzing, formulating and solving engineering problems to promote life-long learning, to develop applications, resulting in the betterment of the society.

PEO 3: Have leadership skills and awareness on professional ethics and codes.

PROGRAM OUTCOMES (PO)

Artificial Intelligence and Data Science program students will be able to:

PO 1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO 6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9. Individual and teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12. Life-long learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSO)

Artificial Intelligence and Data Science program students will be able to:

PSO1: Apply the fundamentals of science, engineering and mathematics to understand, analyze and develop solutions in the areas related to artificial intelligence and data science for optimal design of intelligent systems.

PSO2: Design and Implement appropriate techniques and analytic tools for the integration of intelligent systems, with a view to engaging in lifelong learning for the betterment of society.

PSO3: Practice professional ethics in applying scientific methods to model and support multidisciplinary facets of engineering and its societal implications.

COURSE OBJECTIVES:

This course is designed for enabling the students to apply the knowledge to address the real-world situations/problems and find solutions. The course is also intended to estimate the ability of the students in transforming theoretical knowledge studied as part of the curriculum so far into a working model of a software system. The students are expected to design and develop a software/hardware project to innovatively solve a real-world problem.

COURSE OUTCOMES:

After completion of the course the student will be able to

SL.NO	DESCRIPTION	Blooms' Taxonomy Level
CO1	Identify the requirements for the real world problems	Level 3: Apply
CO2	Conduct a survey of several available literatures in the preferred field of study.	Level 3: Apply
CO3	Study and enhance software/ hardware skills.	Level 3: Apply
CO4	Demonstrate and build the project successfully by hardware requirements, coding, emulating and testing.	Level 3: Apply
CO5	To report and present the findings of the study conducted in the preferred domain and demonstrate an ability to work in teams and manage the conduct of the research study	Level 2: Understand

CO-PO AND CO-PSO MAPPING:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO 1	3	3	3	3	3	3	3	3				3	3	3	3
CO 2	3	3	3	3	3		2	3		3	2	3	3		3
CO 3	3	3	3	3	3	2	3	3		2	3	3	2	2	2
CO 4	3	3	2	2				3	3	3	3	3			
CO 5	3				2			3	2	3	2	3			

3/2/1: high/medium/low