



TECH WIZARD

TEAM MEMBERS

Arshan Mansuri

Ayushi Bangad

Hemant Patidar

Khush Upadhyay

Kumkum Sijeriya

Sanjog Bule



ENHANCING CAMPUS EFFICIENCY

CREATING AN IOT ENABLED
ANDROID APP FOR REAL TIME
PARKING AVAILABILITY

INTRODUCTION

Welcome to the presentation on Enhancing campus efficiency through an Iot - Enabled Android App for real time parking availability . This innovative solution aims to address the challenges of parking management on campus, providing real time data to optimize parking utilization and enhance user experience.

CAMPUS PARKING CHALLENGES

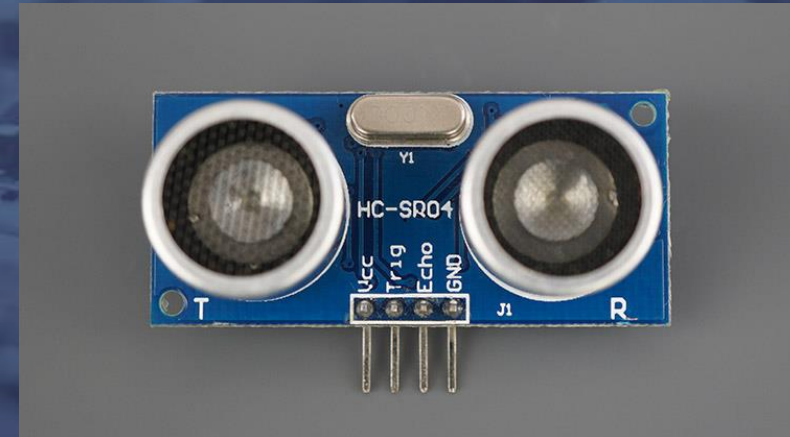
The campus faces parking congestion due to limited space and inefficient utilization. Traditional methods of parking management are ineffective and lead to frustration among students, faculty, and visitors. Our solution aims to alleviate these challenges by providing real-time parking availability information.

IOT – ENABLED PARKING

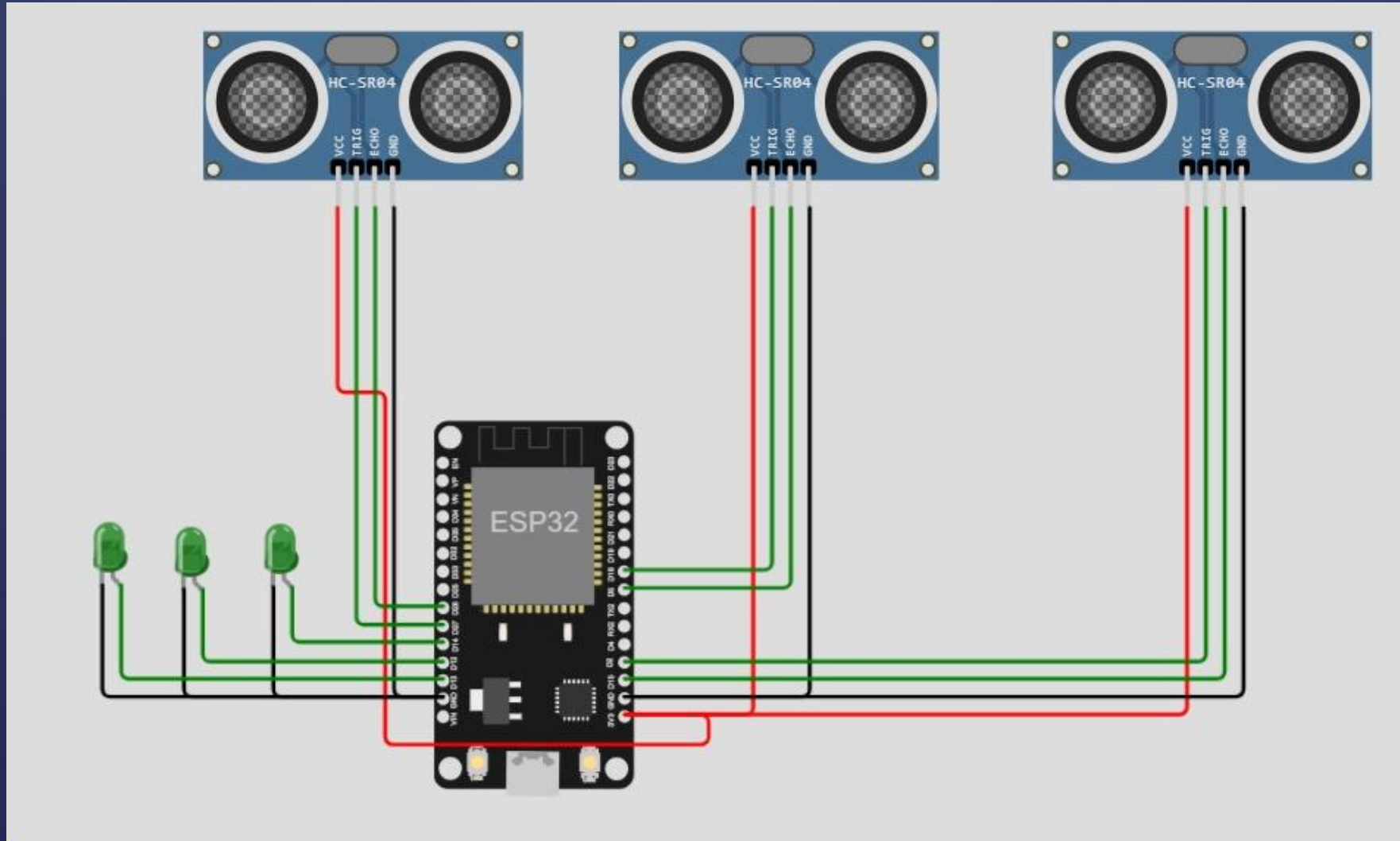
Our solution leverages IoT-enabled parking sensors strategically installed across the campus parking lots. These sensors collect data on parking space occupancy and transmit it to the central system in real-time. The system then processes the data to provide accurate parking availability information to users.

COMPONENTS REQUIRED

- **ESP32** is a series of low – cost , low power system on a chip microcontroller with integrated Wi Fi and dual - mode Bluetooth.
- **HC – SR04** ultrasonic distance sensor . This economical sensor provides 2cm to 400cm of non contact measurement functionality with a ranging accuracy that can reach up to 3mm.



IMPLEMENTATION OF THE HARDWARE SYSTEM



ANDROID APP INTERFACE

The Android app provides an intuitive interface for users to access real-time parking availability information. Users can view the number of available parking spaces in each lot, receive directions to the nearest available spot. The app aims to streamline the parking experience for all campus stakeholders.

KEY POINTS OF OUR APPLICATION

Backend Development:

1. Set up a backend server to receive data from IoT devices and serve it to the Android application.
2. Develop APIs to handle communication between IoT devices and the Android application, including endpoints for sending/receiving parking space data and updating the database.
3. Choose and set up a database (e.g., MySQL, MongoDB) to store parking space occupancy data.

Android Application Development:

1. Develop an intuitive and user-friendly Android application interface.
2. Implement features such as real-time updates of parking space availability, user authentication, and notifications.
3. Integrate Google Maps API for displaying the campus map with parking space locations.

BENEFITS OF THE SOLUTION

By implementing this solution, the campus can achieve optimized parking utilization, reduced traffic congestion, and improved user satisfaction. Students, faculty, and visitors will benefit from time savings and reduced frustration when searching for parking. The solution also aligns with the campus's commitment to sustainability by minimizing unnecessary vehicle emissions.

BULK SOLUTION FOR THIS PARTICULAR DOMAIN

- Our Focus is to deal with Parking on a larger area so that the challenges faced while parking in the Big Festivals and for any Greater Occasion can be minimized and the user is able to check the live parking status for any particular area.
 - We will be soon working to update our app for bulk parking by introducing Computer Vision technology in our app. We will install cameras in the parking fields in order to take a track of the availability of parking in the area.
- This camera footage will be directly visible to the user on our App for there benefits.

CONCLUSION

In conclusion, the implementation of an IoT-Enabled Android App for real-time parking availability holds immense potential to enhance campus efficiency. By leveraging IoT technology and intuitive app interfaces, we can transform the parking experience on campus, contributing to a more sustainable and user-friendly environment.



THANK
YOU