- COLLEGE CODE: 9133
- COURSE:Internet of things(IoT)
- PHASE1:problem definition and design thinking
- PROJECT TITLE: smart parking

TEAM MEMBERS:

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PROBLEM DEFINITION:

- The project involves to find the nearby parking area and showing the parking space availability to the use

- It includes IoT sensors and public can easily accessing the information through a public platform

PROJECT OBJECTIVES:

- **Real-Time Parking Space Monitoring:**

  - Implementing IoT sensors to monitor the occupancy status of parking spaces in real-time.
  - Providing instant updates to the central system on parking space availability.

- **Mobile App Integration:**

  - Integrating the real-time parking data into a user-friendly mobile application.
  - Enable users to access up-to-date information on parking availability through the mobile app.

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REQUIREMENTS:

- Radar sensor
- Raspberry pi kit
- Develop a mobile app for people accessing the information about the parking spaces publicly

SYSTEM ARCHITECTURE:

- The radar sensor is connected to the Raspberry Pi via GPIO pins.
- The Raspberry Pi processes data from the radar sensor and stores parking space availability information locally.
- An API on the Raspberry Pi exposes endpoints to access the parking information.
- The mobile app interacts with the API to display real-time parking space availability.

RASPBERRY PI SETUP:

- Connecting the radar sensor to the Raspberry Pi following the sensor's datasheet and GPIO pinout.
- Installing necessary software libraries and drivers for the radar sensor.
- Developing a Python script to read and process data from the sensor, determining parking space availability.
- Creating a simple API using Flask or Django to expose endpoints for accessing parking information.

MOBILE APP DEVELOPMENT

- Developing a mobile app using phython.
- Implementing API calls to fetch parking space availability data from the Raspberry Pi.
- Designing an intuitive user interface to display real-time parking information.
- Including the features such as user authentication and push notifications for live updates.

USAGE

- Users open the mobile app and log in and give the location access for that app.
- The app fetches real-time parking space availability data from the Raspberry Pi via the API.
- Users can view the availability status of parking spaces in the designated area.
- The app provides an intuitive interface with visual indicators for easy interpretation.

Conclusion:

- This design thinking addendum extends the initial project definition to encompass specific objectives related to real-time parking space monitoring, mobile app integration, and efficient parking guidance. By focusing on these objectives, the project aims to enhance the overall user experience and efficiency of public transportation services.