PHASE-2

Problem statement:

To find free parking space in crowded places and let users know them.

Micro controllers used:

1)ESP32: It detects information from the sensors like ultrasonic sensor and concludes whether parking slot is free or not. It can be connected with cloud to store data. It used wifi or Bluetooth for data transmission.

2) Arduino Uno: It is used to detect the presence of vehicles in parking slot.It can communicate information to a central controller or a web server.

Iot sensors:

1) ultrasonic sensor:It is used to detect whether the parking slot is free or not. A ultrasonic sensor is placed on parking slot and it emits high frequency pulse from trigger pin . In the presence of any vehicles ,the ultrasonic pulse is bounced back and detected using echo pin. Thus we can find out occupied spaces .distance=time*speed/2 formula it used to calculate distance of parked vehicle and sensor.

2)Servo motor:It can be used to control the entry and exit of vehicles.

Connectivity:

The Arduino Uno and esp32 are connected with the central using wifi and Bluetooth.

Cloud:

Beeceptor: It provides cloud service to users. It is used to store and intercept data. It also used to modify and filter our data. Beeceptor can be used to simulate Http request and responses .

Protocols:

1)MQTT-Message queuing telemetry.It is used for communication between sensors used in parking slot and central server .

2)HTTP-Hyper text transfer protocol. It is used in while we are using mobile apps to present information regarding free parking slots.

3)Zigbee:This protocol is used for connecting sensors .

4)Bluetooth(BLE):This protocol is used for connecting mobile phones and parking sensors to provide information about free parking space.