Smart Parking System

Category: Internet Of Things

Objective: To design a smart parking system .

Project Description

- Finding a parking place is not easier in shopping malls and public places.
- A smart parking system allows the public to find information about the parking slot.
- By Integrating Ultrasonic Sensors with the Parking Slots we can help the user in finding the empty slots.
- At the entrance, we can keep two LEDs for every slot and if the parking slot is filled it will indicate with Red Led and if it is empty it will indicate with green Led.

Equipements: 1. ultrasonic sensor HC-SR04
2. 3 LED's
3. 1 buzzer
4. Arduino UNO
5. Jumper wires

Platform used TinkerCAD.

Process: According to the given problem it tells me to use only 2 LED for letting the user aware of the empty places, but I've incorporate 3 led's and buzzer to make it more user friendly. I have developed 4 test cases. The distance is calculated with the help of ultrasonic sensor.

Case 1: When the distance of the object (in this case it is a car) from the user is greater than 100 cm then I've considered the place to be empty so the user will see the green led blinking at the entrace which means parking is availabe.

Case 2: When the distance of the object from the user is greater than 50 cm but less than 100 cm then the parking slot might be full, so the user will see a the yellow led blinking at the entrance.

Case 3: When the distance of the object from the user is greater than 20 cm but less

than 50 cm then the parking slot is full, so the user will see a the red led blinking at the entrance. Even after this if users tries to take that place Case 4 will be executed.

Case 4: For safety purposes I've used a buzzer so that when the distance of the object from the user is less than 20cm then the user must STOP immediately. A buzzing sound sound will be generated which will make the user aware of it.