ABSTRACT

People in highly populated areas face issues in finding empty slots for parking their vehicles. Driver depends on either luck or skill to find a spot for parking their car. It takes lots of time and effort. There are so many solutions available for smart parking management systems utilizing a PIR sensor to detect the object's presence and using three Arduino nano coupled to an NRF24L01 module to transfer data to Arduino Mega, with CCTV cameras. The problem with this is idea is that PIR sensor to detect an empty slot, but huge disadvantage of this sensor is that it cannot work beyond 35 degrees of temperature, and CCTV cameras do not provide efficient results in cloudy and dark climatic conditions.

Hence to improves efficiency of smart parking system a cloud-based smart-parking system is introduced that helps users in finding a free empty parking slot at the least possible amount of time. With an application, a user can book a parking slot. Also, it utilizes ultrasonic sensor to calculate total number of free spaces, RFID Reader-tag, using strategies based on a unique identification number of each RFID tag attached for each automobile. SPS based on RFID and WIFI technology this proposed system collects data about availability of empty parking slots to direct the driver to the empty parking slot. The above system proposed which finds random parking slot and books for users via an android application. Thus, the proposed system be also used in the real world.

Keywords: Ultrasonic Sensor, RFID, WIFI module, Esp32 development board, MQTT pub-sub protocol, Firebase DB(cloud server)