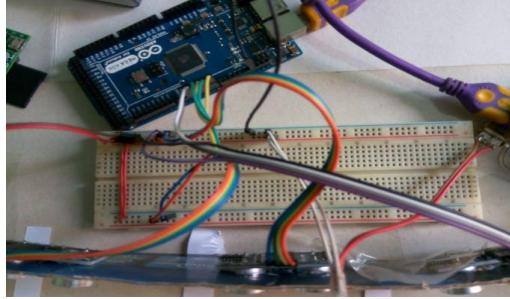


# *SMART PARKING SYSTEM*

## Overview



The Smart Parking System is a cutting-edge remedy created to lessen the difficulties related to parking in cities. In order to maximize parking space use, improve user experience, and reduce traffic in parking lots, this project integrates a number of different components, including Arduino, IR sensors, LCD display, servo motor, buzzer, and LED lighting.

### Qualities:

**Automatic Parking Detection:** To identify the presence of automobiles, IR sensors are positioned thoughtfully at each parking spot. The sensors notify the main Arduino unit whenever a car moves into or out of a parking space.

**Real-time Monitoring:** The lot's available parking spots are shown in real-time on an LCD monitor. Drivers can spend less time looking for parking by using this display as a guide to point them toward available places.

**Effective Space Management:** The system makes sure that parking spaces are used as efficiently as possible by allocating places depending on availability. Drivers may immediately identify available parking spaces by using the LED lights above each one, which indicate whether the space is occupied (red) or vacant (green).

**User-friendly Interface:** In addition to providing important information like parking fees and time limits, the LCD display also

provides directions for navigating the parking lot. Drivers' parking experiences are improved overall by this user-friendly interface.

**Automated Car Retrieval:** The system uses a servo motor mechanism to move a gate or barrier to open when a user requests entry to a parked car. This automated procedure improves security and does away with the necessity for human interaction.

**Security Measures:** A buzzer notifies parking attendants or surrounding pedestrians in the event of an unauthorized entry or suspicious activity within the parking facility, in addition to visible signs.

### Advantages:

**Optimized Parking:** The Smart Parking System lowers traffic and cuts down on time spent looking for parking spaces by giving real-time information on availability.

**Improved User Experience:** The automated features and user-friendly interface make parking easier, giving drivers a more convenient and effective experience.

**Better Traffic Flow:** By minimizing traffic jams and increasing accessibility, effective space management and conspicuous signage help to improve traffic flow in the parking lot.

**Enhanced Security:** By preventing unwanted entry and possible occurrences, the addition of security features like IR sensors, LED indicators, and a buzzer improves the security of the parking lot. In summary, the Smart Parking System is a major development in urban parking management that provides a thorough answer to the problems of a growing number of vehicles and a shortage of parking spaces. This system makes parking easier for drivers and parking operators by utilizing automation and state-of-the-art technology. This, in turn, makes the urban environment more sustainable and effective.