

# Project Report

---

**Submitted by:**

**Kamrul Hassan Jony 1921537042**

**Mohammad Saiful Islam 1922071042**

**S.M Shahariar Rahman Anu 1921706642**

---



**North South University**  
**Course: CSE-331 Section: 06**  
**Group 10**

---

---

**CONTENTS.....**

**INTRODUCTION.....**

    OVERVIEW.....

    BACKGROUND AND MOTIVATION .....

    METHODOLOGY .....

**TOOL DESCRIPTION.....**

    CODING PLATFORM.....

    DESIGN PLATFORM.....

**METHODOLOGY .....**

**PROJECT DIAGRAMS AND PHYSICAL DESIGN .....**

**SIMULATION RESULTS .....**

**REFERENCES .....**

---

## **Introduction:**

According to estimates, about 30% of city traffic congestion is attributed to drivers looking for parking. Cities, companies, and real estate developers have historically attempted to balance parking supply and demand. However, it is now apparent that adding more parking places alone will not solve the congestion issue. With the help of new methods and intelligent parking technologies, parking is seen from a more balanced perspective that better controls the link between supply and demand. The use of cutting-edge technologies for effective operation, monitoring, and management of parking as part of an urban mobility strategy is known as intelligent parking. With the United States accounting for 46% of the global market for innovative parking systems, there is significant room for expansion for businesses providing services domestically and abroad. The market for smart innovative systems reached \$93.5 million globally. Innovative parking solutions are based on many technologies, including vehicle sensors, wireless connectivity, and data analytics. Innovation in fields like smartphone apps for customer service, mobile payments, and in-car navigation systems also makes smart parking feasible. The ability to access, gather, evaluate, communicate, and act on information about parking utilization is at the core of the smart parking idea.

## **Motivation:**

1. Users can find the optimal parking location, saving time, resources, and effort. The parking lot fills up quickly, allowing businesses and corporations to use the available space well.
2. Decreased traffic - Traffic flow improves as fewer vehicles are needed to look for available parking spaces.
3. Less pollution - Every day, over one million barrels of oil are burned while people look for parking. The ideal parking solution will significantly affect the amount of time spent traveling, reducing daily vehicle emissions and, ultimately, the environmental impact on the world.
4. 4. Improved User Experience – An intelligent parking solution combines all user interactions into coordinated action. The procedure of arriving at the destination includes the driver's payment, location search, spot identification, and time alerts.
5. 5. New Business Streams - Smart parking technology opens many new revenue opportunities. For instance, parking lot owners can provide tiered payment alternatives based on the location of the parking space. Reward schemes can also be incorporated into current models to attract repeat customers.
6. 6. Lower Management Costs - Less manual work and more automation reduce labor costs and resource exhaustion.

## **Tool Description:**

### **Microcontroller (Arduino UNO):**

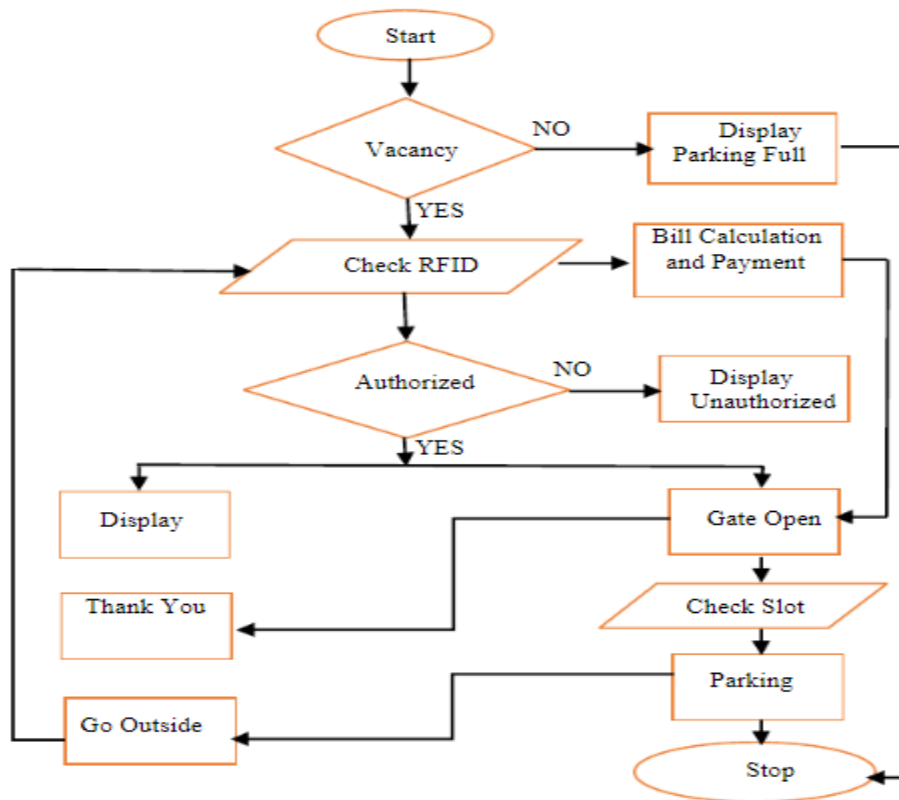
A microcontroller converts the location signal from the image processing on the PC into control signals that the robot's IK uses to operate the motors. The famous commercial Arduino board is the suggested microcontroller used in the study. A single-board microcontroller called an Arduino comes with a programming software package (see Fig. 3-1). It has onboard I/O capability and is made for an Atmel AVR CPU. On the ATmega1280, the Arduino Mega microcontroller board is based. It contains 16 analog inputs, four hardware serial ports (UARTs), a 16 MHz crystal oscillator, 54 digital input/output pins (14 of which can be utilized as PWM outputs), a USB connector, a power jack, an ICSP header, and a reset button. It includes all the components required to support the microcontroller.

### **Proteus:**

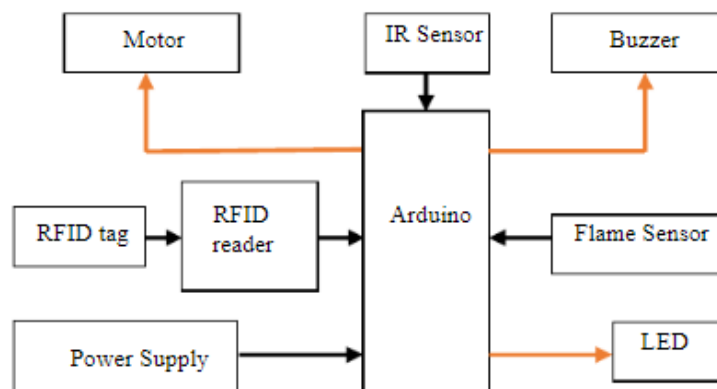
A genus of Gram-negative bacteria is called Proteus. Proteus bacilli are widely dispersed in nature as saprophytes and can be found in the intestines of mammals, sewage, manure soil, and feces of humans and animals. Library Parts Are Featured in Proteus PCB Software. Assembly Variants; 15 million integrated and available library parts. Report Generation; Simple product variant creation and management. Design Rules, High-Speed Design, Power Planes, and a specific reporting module for project documentation.

## **Methodology:**

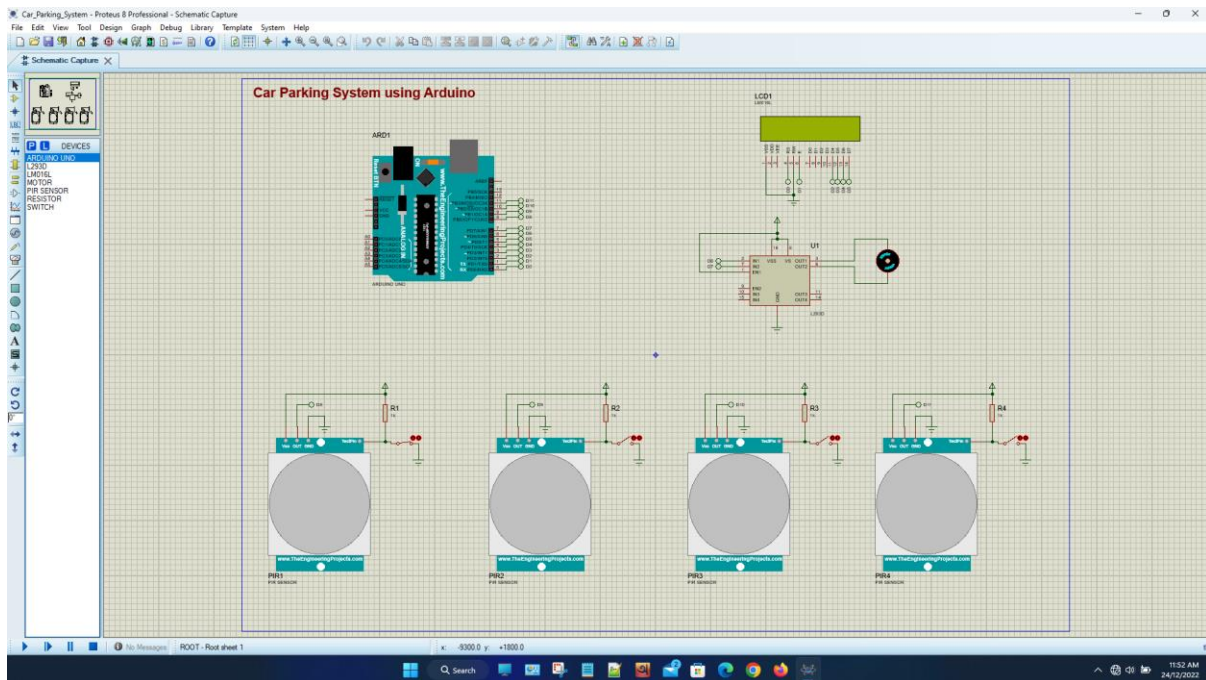
The entire procedure was broken into different chunks and combined to produce the desired result. To complete that job, two different sorts of processes were employed. A wireless connection was one technique, and a wired connection was another. RFID tags and RFID readers were employed in wireless processes, and an Arduino, LCD, flame sensor, and other equipment were connected via cable connections. Information from the RFID tag is sent to the RFID reader, which then sends the information to Arduino. When the LCD receives valid information from Arduino, it will display that information and open the gate. At the same time, Arduino would receive information from the IR Sensor regarding the open space and display it in the LCD. Arduino will get information from the flame sensor, and the buzzer will sound if there is a fire mishap in the parking lot. The RFID tag will need to be punched when the car pulls away from the parking space once more, and Arduino will then receive data from the RFID reader. The display will then reflect the amount of time, and money users must spend parking. Arduino receives the data and opens the gate when the user makes a payment.



## Project Diagrams:



## Simulation Results:



## References:

1. <https://docs.arduino.cc/>
2. <https://www.arduino.cc/>
3. <https://ettron.com/download-and-install-proteus-8-12-latest-version-with-crack/>