GNDEC Parkopedia

MINOR PROJECT SYNOPSIS

BACHELOR OF TECHNOLOGY

Information Technology

SUBMITTED BY:

Manmohan Singh(2021159/2104591)

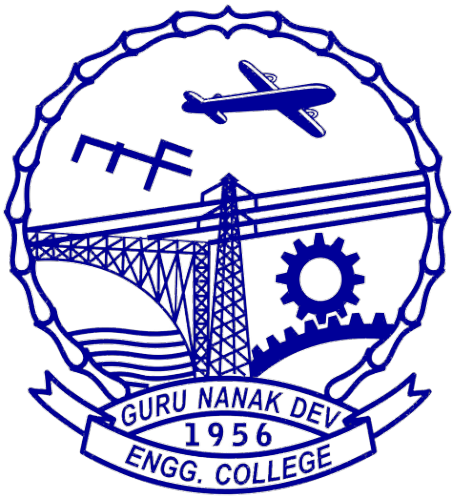
Amandeep Singh(2021155/2104584)

Diksha Sharma(2021025/2004904)

Rajan(2021153/2104594)

SUBMITTED TO:

Er. Gitanjali



GURU NANAK DEV ENGINEERING COLLEGE

LUDHIANA-141006

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1 Introduction

Nowadays, the main problem in malls, function halls and colleges, etc., is parking. It is due to the lack of sufficient parking space. Nowadays all the students opt for a personal vehicles, no student prefers public transport, and due to this, the number of vehicles are also increasing in the country, which leads to the parking scenario which is unhappily falling short of the current requirements. Due to this parking is challenging and it also increases the time needed to park the vehicle with increase in the fuel consumption of the vehicle. And during the working days the colleges, universities, and offices are facing the problem of parking in urban areas. These days vehicles are most affordable to the low-income group families also and vehicles especially cars are taking a lot of space. Due to the increase in vehicles, parking space is also not sufficient in these congested cities.

At our institute, problems with parking are a massive issue. Most of the time students spend their time searching for parking, to park their vehicles. All this hinders the discipline of the educational institute. Thus, a lot of congestion occurs in the traffic which leads to a tedious job to find the parking space to park their vehicle. The most indiscipline occurs only because of vehicle congestion in the parking area thus students are wasting time searching the parking area abnormally to park their vehicles.

In this project, IoT-based guidance is proposed for users of the system or students of our institute to monitor and book the parking space for the vehicle and to manage and monitor free parking spaces, it provides an intelligent solution. It aims to implement a smarter and better parking guidance mechanism that significantly reduces inconvenience in conventional parking systems. The system can monitor the state of every parking slot by deploying a sensor node on each slot. Accordingly, the sensor senses the status of a parking slot and sends the status to the central server controller. The Central Server collects the data from all sensor nodes and uploads it to the server where users can check the parking status from anywhere using the Interface provided. The proposed system will work according to the optimum utilization for vehicles of the institute's parking space. The system will also introduce a protocol which needs to be followed to make the system succeed.

2 Objectives

1. To prohibit trespassers in the college parking area.
2. To automate the process and permit only authorized person to enter into the college parking.
3. To keep the record of traffic in college parking with vehicle details and the time stamps for security concerns.
4. To allocate parking slots and use the parking space effectively.

3 Feasibility Study

A feasibility study is a preliminary study that investigates the information needs of prospective users and determines the resource requirements, determining the cost-effectiveness of various alternatives in the designs, benefits, and feasibility of the proposed project. The goal of the feasibility study is to evaluate alternative systems to propose the most feasible and desirable systems for development. The feasibility of our proposed system can be evaluated as –

Feasibility can be demonstrated if reliable hardware and software capable of meeting the needs of the proposed system can be developed or acquired by the business in the required time. Our project is technically feasible because the required software are Visual Studio Code, Blender 3D, App for interaction, Figma and Unity Engine which are all available to us and easy to use. The hardware required is Arduino, Sensors, Server, and Scanner.

Technical Feasibility: The tools and technologies used in the development of this system are:

• Code Editor: Arduino IDE

• Languages: C++

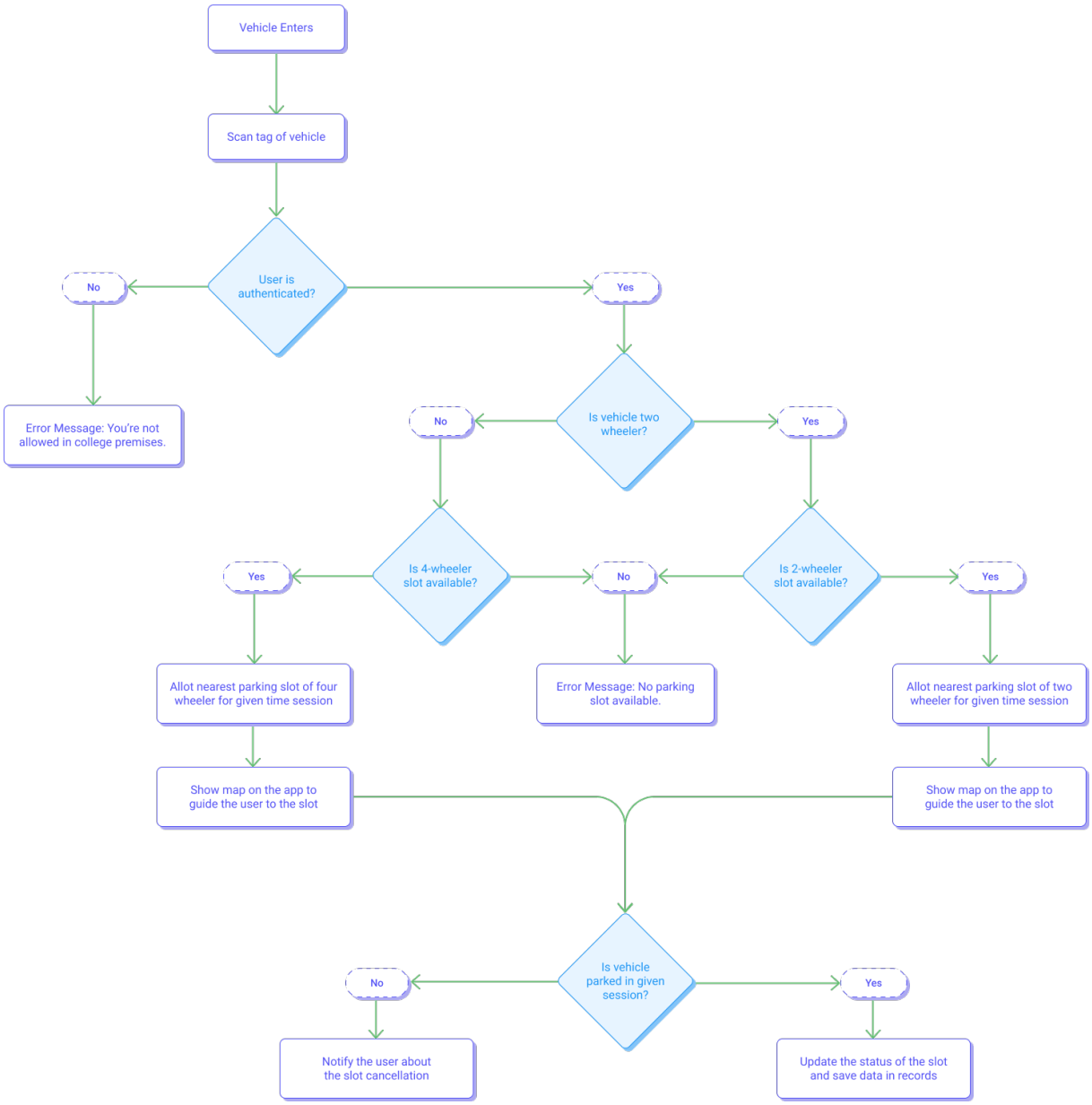
• Hardware: Arduino UNO, MFRC522 (Low-frequency RFID), Servo Motor, Bulbs, Bread-board, Jumper Wires, Buzzer.

These software are free to use and are available for students. To install all these in your system, you need a regular laptop/PC with a minimum of 8 GB RAM.

Economic Feasibility:The hardware resources used in this project are easily available and are very economic.The hardware cost us around Rs.3000. To practically implement the model at the college/institute level, the approximate cost is 1.25 Lac for the initial phase (authorization using boom barrier). The software and tools used for this system are free of cost, easily available and can run on any device.

Operational Feasibility: Operational feasibility is a measure of how well the proposed system will solve the problems, and takes advantage of the opportunities that are identified during scope definition and how it satisfies the requirements identified in the requirements analysis phase of system development. Operational feasibility reviews the willingness of the organization to support the proposed system. This is probably the most difficult of the possibilities to gauge. In order to determine this feasibility, it is essential to understand the management commitment towards the proposed project. The project is easy to use and can run on any system having the required specifications and system irrespective of the OS used.

4 Methodology



5 Facilities required for proposed work

5.1 Software Devices

Arduino IDE

5.2 Hardware Devices

Arduino Uno

RFID Reader Module

Jumper Wires

16x2 LCD Display

Servo Motor

IR Proximity Sensor

6 References

References

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