

VEHICLE MANAGEMENT SYSTEM

REVIEW-I REPORT

Submitted by

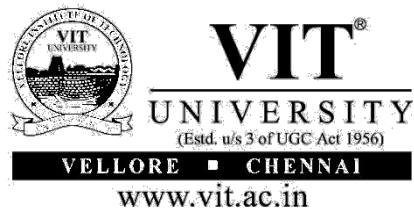
Anshuman Saboo-17BCE0141

Madhur Dixit-17BCE2181

Software Engineering

PROJECT SUPERVISOR

PROF. Ramanathan.L



VIT UNIVERSITY VELLORE 632014

AIM

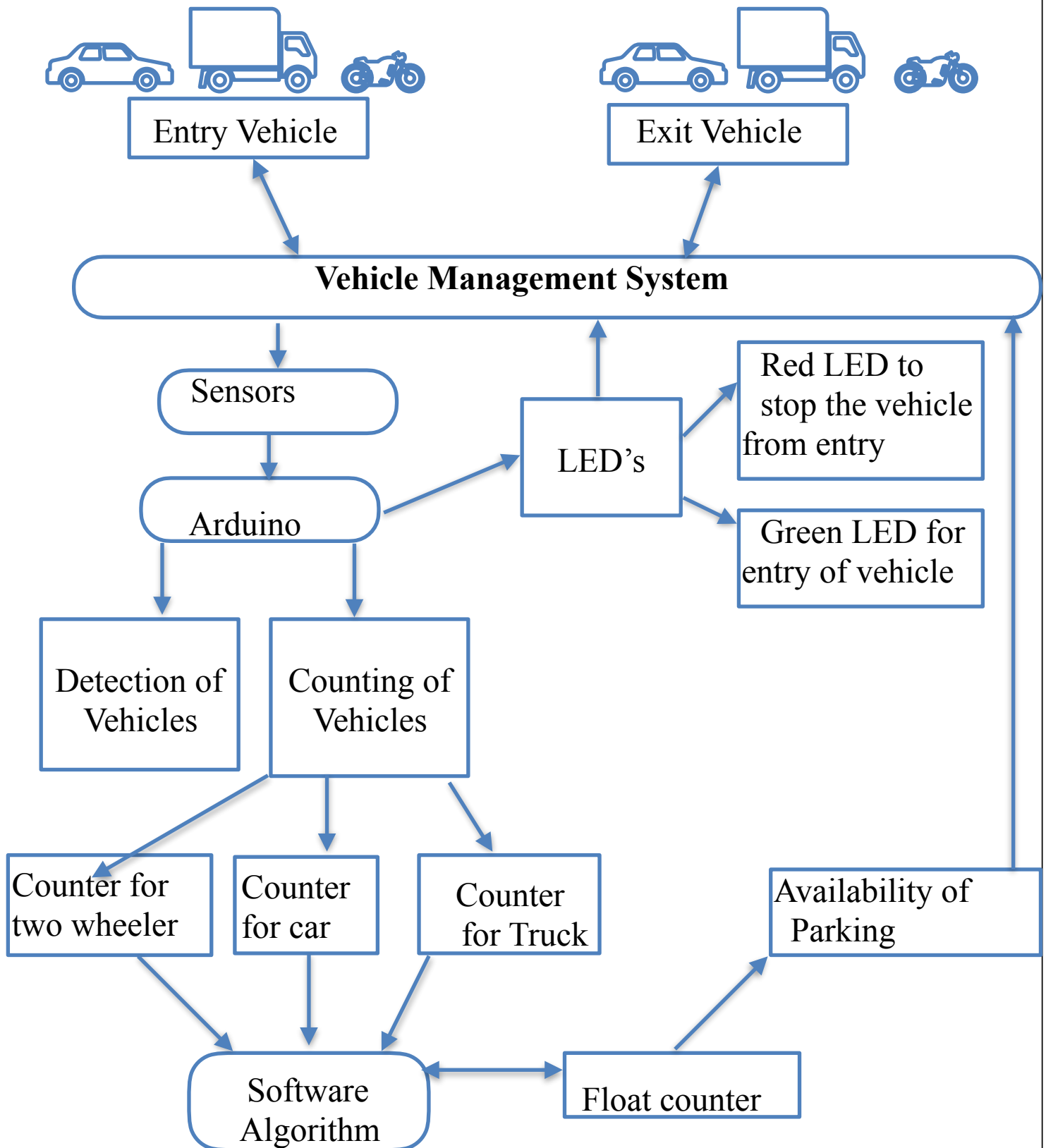
The aim of our project “Vehicle management system” is to manage the parking of different type of vehicles at a predefined field. All vehicles should be allowed to enter in the parking field if there is a vacant parking spot. The project aims at helping in differentiating the different vehicle. It also aims to reduce the manual effort required to check if parking is available or not. The project will help in the parking of cars and trucks using sensors and see that the process of entering and exiting of vehicles go smoothly.

ABSTRACT

Vehicle management system aims at conveniently managing the parking at a known field. Every year, the number of vehicles is increasing exponentially which leads to problems like parking and traffic. A vehicle management system can ease the control of traffic due to unavailable space on roads and can make the best use of free space available.

The vehicle management system detects the vehicle moments through ultrasonic sensors who feed the information to the software. The software is configured to see that all parking spots are utilised to the maximum. Each parking spot and sensors have to been carefully planned and known beforehand to the software. The software based on parking availability interacts with vehicle driver through LED lights. The vehicle management systems also helps in differentiating the different type of vehicle through the sensors. The project will use Arduino boards to gather information and feed it to the system. The code will generate with the given information and help in the parking system.

ARCHITECTURE DESIGN



MODULE DESCRIPTION

- **Detection if Vehicle is present :**

With the help of sensors we will check the presence of a vehicle when it enters and exits the parking field. There will be sensors placed on both the entry and exit gates. These sensors detect the presence of vehicle.

These sensors work by sending sound waves from the transmitter, which then bounce off of an object and then return to the receiver. The receiver then confirm the detection of the vehicle.

- **Confirming if the vehicle is present using green LED's**

When the sensors confirms the detection of the vehicle. The software is fed the information via the Arduino board. Here system registers the number of vehicles and sends a command to the LED light to glow Green.

- **Detection of which kind of vehicle is present**

The sensors are placed at a particular height to differentiate the different type of vehicle based on their height. A truck which is taller than a car can be easily detected by the system by its height through the sensors.

- **Confirming which kind of vehicle is present**

When the sensors confirm the kind of the vehicle. The software is fed the information via the Arduino board. Then the software based on the parking field and parking availability commands the LED light to glow green if parking is available or red if parking is not available

- **Using a counter to count the limit of the parking lot**

After the systems knows the kind of vehicle, it checks the parking availability. Here we have assumed that a truck will take twice the space of a car. So based on the parking availability, we use a counter to count the number of vehicles. If counter is not greater than parking limit of the systems allows the vehicle to enter via Green LED light.

- **If parking lot limit exceeds the critical limit we use a red LED to close the entry point :** So based on the parking availability, a counter is used. If counter is greater than parking limit of the systems doesn't allows the vehicle to enter via Red LED light.
- **The moment parking space has more space because some vehicle left we switch off the red light.**

When a vehicle exits the parking field, the counter is also decreased which means parking availability. So the system commands the LED light to glow back to green to allow the vehicle waiting for parking.

Hardware:

- Arduino UNO
- Ultrasonic sensors
- LED's
- Male to male jumpers
- Male to female jumpers

Software

- Language used- C Sharp
- Arduino Code Editor