MINI PROJECT-II
(2020-21)

Smart Parking System

SYNOPSIS

Institute of Engineering & Technology

Team Members

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Introduction:

Car parking is a major issues in modern congested cities of today. There are simply too many vehicles on the road and not enough parking space. This has led to the need for efficient parking management systems. Thus we demonstrate the use of IOT based car parking management system that allows for efficient parking space utilization using Internet of Things.

Area of Computer Science :

Internet of Things

Software requirements :

a) Hardware:

- Infra- Red (IR) sensors
- LED Lights
- Personal Computer
- ESP8266 wifi module
- LCD Display
- Servo Motor
- LDR Module
- Connecting Wires

b) Software:

- Arduino IDE (Version 1.8.13)
- Thingworx (Interface)

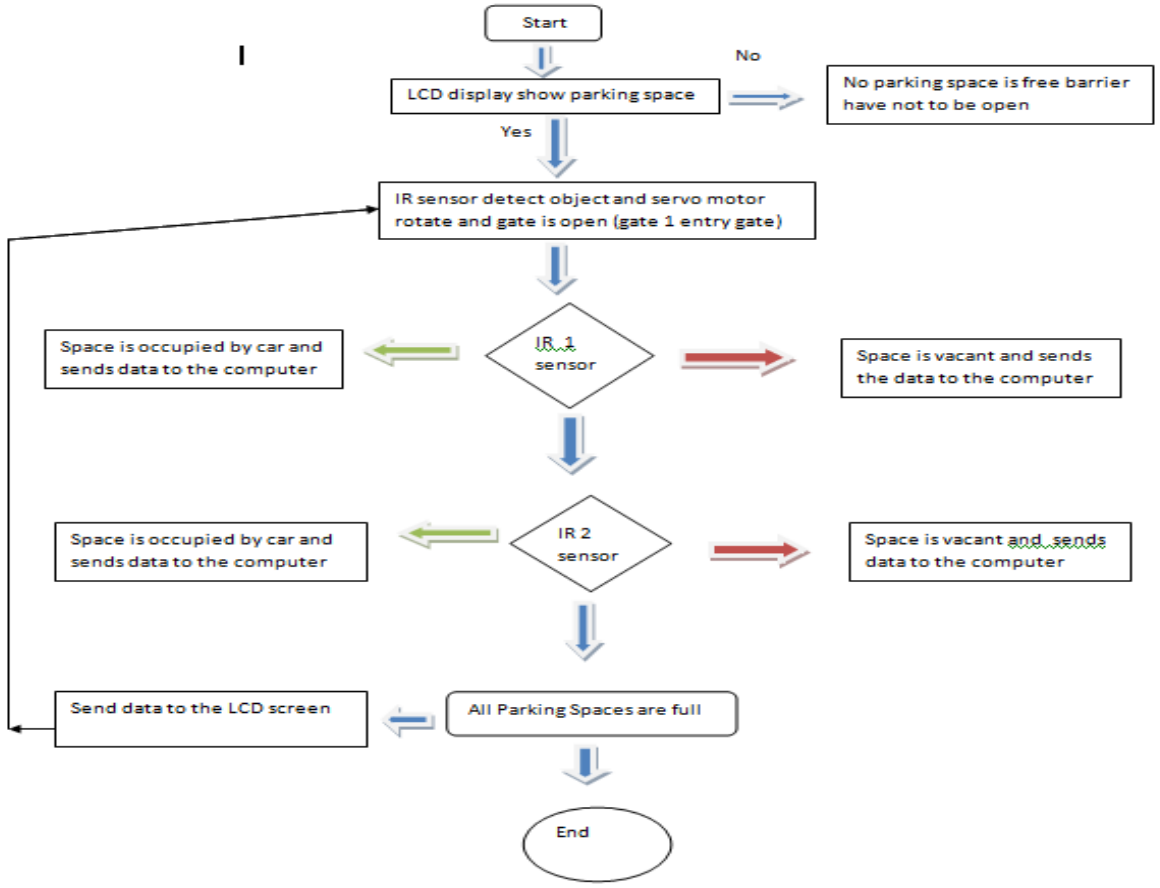
Problem Definition :

This project is to create a Smart Parking System using IOT with Thingworx and that can monitor an available empty slots economical and reliable and considerably contributing to fuel and time consuming.

Objectives:

The main objective of the project is to manage the real time information regarding availability of parking slots in a parking area. The purpose of the project is to improve the parking facility of the city and aim to provide the ease to people and reduce the hassle during parking and managing the parking issue for cities and get users an efficient IOT based parking management system.

Methodology:



Implementation Details:

ESP8266 will control the complete process and also send the parking availability information to Thingworx so that it can be monitored from anywhere in the world over the internet.

IR sensors are used at entry and exit gate to detect the presence of car and automatically open or close the gate. IR Sensor is used to detect any object by sending and receiving the IR rays.

Servos will act as entry and exit gate and they rotate to open or close the gate. Finally sensor is used to detect if the parking slot is available or occupied and send the data to ESP8266 accordingly.

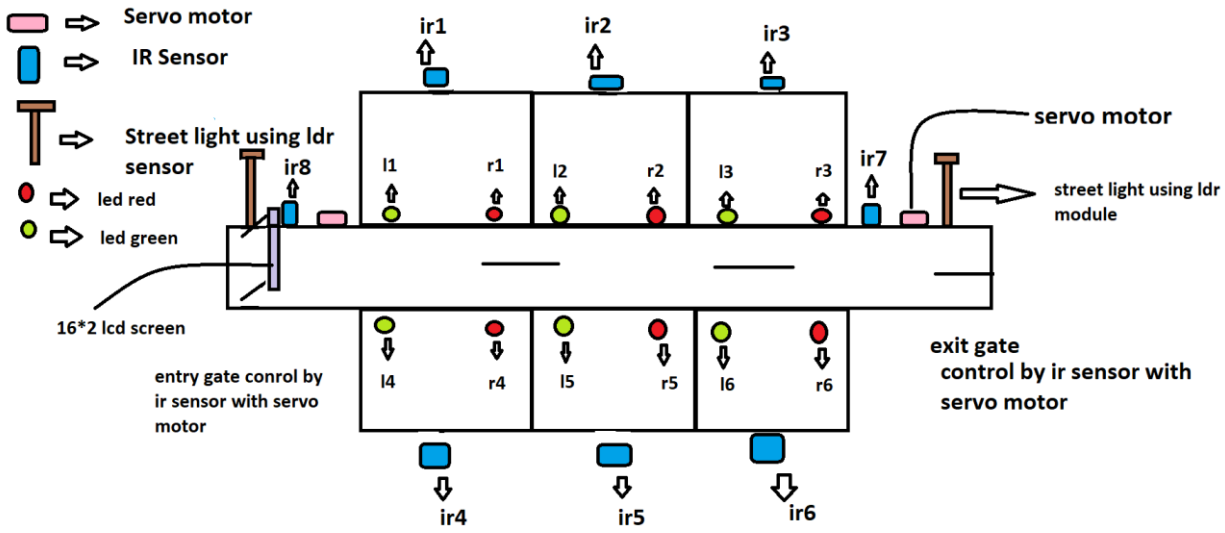
Detail

when car is comes, driver see the LCD screen that is fixed before the barrier of the parking this LCD 16*2 display the vacant parking slot .if there is no parking slot is available then it display 0 slot and our parking barrier (connect to the ir sensor and servo motor that is connect to the arduino Uno) cannot open in this condition.

if there is vacant space is available then barrier is open and car is enter in parking .in each parking slot there is a ir sensor that detect car is available in the slot or not and display combine data of all ir sensor on lcd screen and display the data on computer screen. We use pair of leds in each slot that are connect to ir sensor in that particular

Slot through arduino Uno that display whether if slot is vacant then it glow green otherwise red. This system is fixed all parking slot and display all the data on computer screen or LCD screen. When car is going outside of parking then gate is open with the help of ir sensor and servo motor.

there are using 2 street light this is fully automatic in this street light we are using led strip and LDR sensor (that detect the light)and battery.



Contribution:

A project is successfully completed only when there is contribution from all the members of a team. In the same way to complete this project we have divided our work in an equal manner. Instead of selecting a particular task to do

individually, we divided a single task in multiple subtasks so that we all can work together on the same phase or task of the project. Doing so no team member has to wait to show his or her capabilities.