

Advance Wireless parking system

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ABSTRACT-

In this project we demonstrate the idea of advance car parking system using wireless protocols. We use RF network that sense car parking slot is available or not. This information update coming in vehicle. According to requirement nearest slot of parking display in LCD and weep the buzzer.

There are two modes of project:

★ Transmitter mode:

In this mode we use the IR sensor which placed in parking place. It sense the parked vehicle and this information update on requirement and absence of vehicle

★ Receiver mode:

In this mode, system automatically receives the incoming signal and update in the LCD display and weep the buzzer. It also updates and this information is send to incoming vehicle.

Keywords: Ht-12 Encoder and Ht-12 decoder, LCD, microcontroller, Photodiode

1. INTRODUCTION

In this project we show the concept of advanced parking system using wireless protocols. As soon as we enter the parking of any place, say a mall, we are not aware of the places to park our car. This indeed consumes a lot of time and is a hectic process. This system provide us with a convenient and less time taking process by letting us know the parking slots available for our car.

In this parking system we use IR sensors at different parking slots of different parking sites. We issue a LCD display unit for each and every car. This uses a digital code and transmits via RF module, using Ht-12e encoder and Ht-12 decoder, at the time of entrance in parking. When any car enters in the parking area then sensor sense the vacant parking slot and send the signal to the receiver.

The receiver displays the nearest parking slot available in the nearest parking area along with all the other vacant slots. We use red and green LED lights to display occupied and vacant slots respectively. We will be using power supply to make the model work.

With the help of microcontroller all the parking slots in all the parking sites in a particular area can be monitored. As soon as any slot gets vacant the sensors sends the signal and that slot goes from occupied to vacant.

In this project we use one encoder circuit with RF transmitter to transmit the unique code of each car. In this transmitter circuit we use one 433 M htz transmitter with HT12E encoder with 4 bit data input. So whenever we press the transmit switch then 4 bit code is generate from the encoder circuit and encoder convert this parallel data into serial and connect this serial code to the 433 Mhtz transmit module.

Code is received by the HT12 D Decoder circuit and decoder provides a 4 bit code to the output. When HT12D decoder, decodes the data then this data is connected to the microcontroller circuit. Microcontroller gets this data and compare with the data base inside. If the data incoming data is matched with the data base then only LCD display the vehicle id no.

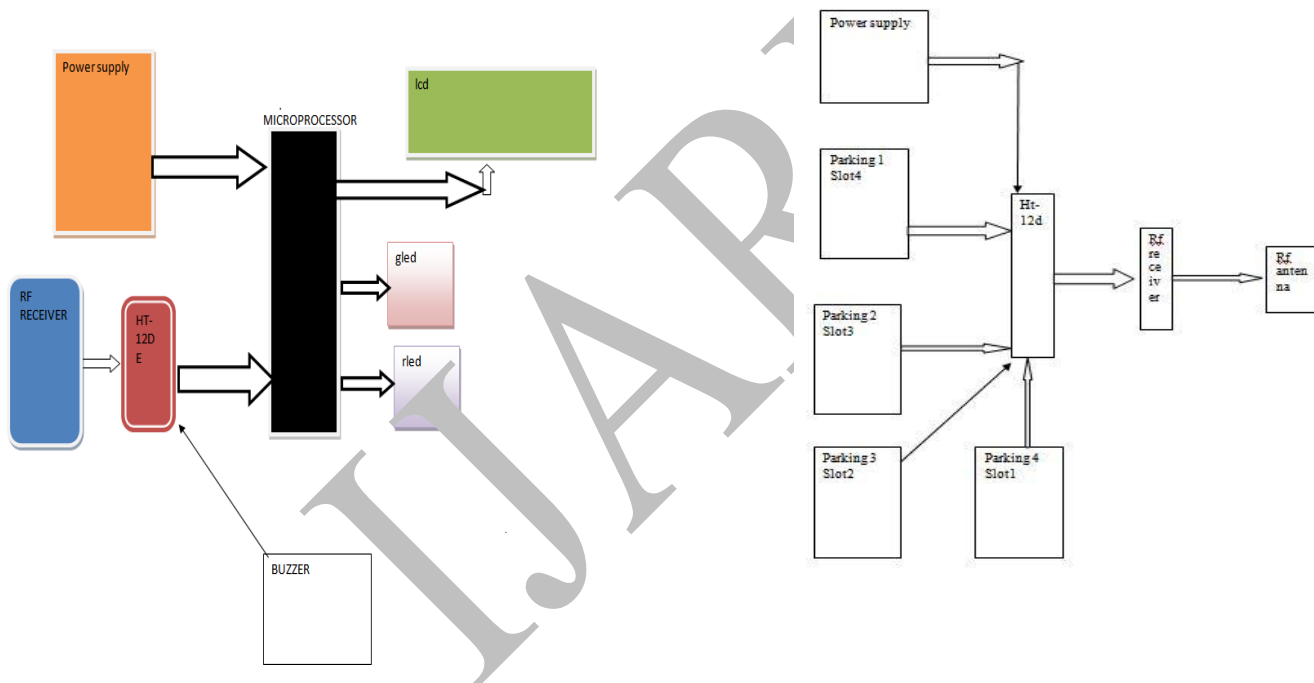
Whenever any car enters in the parking premises then first of all sensor sense a signal from car interruption. For this purpose we use infra red LED and photodiode as a photo-detector circuit. In this project we use two gates with two infra red sensors. Along with sensor's we use LM 358 IC as a comparator circuit to provide a signal to the microcontroller directly. LM 358 is a dual opamp inside, so we use one IC for both the sensor/s

We use 24C02 IC to save the car entry time and exit time with vehicle ID. IC 24C02 is 8 pin memory IC and save the data after power is switch off.

2. PROPOSED PARKING SYSTEM

The main operation of any parking system is that it should tell us about a vacant parking slot when we go in a parking area without taking time. In our project we make use of RF sensors to tell us about the parking slot available for parking in a given area .The slot availability is displayed on a 2X16 LCD display unit. The block diagram for the advance parking system is given in the figure below

3. Block diagram



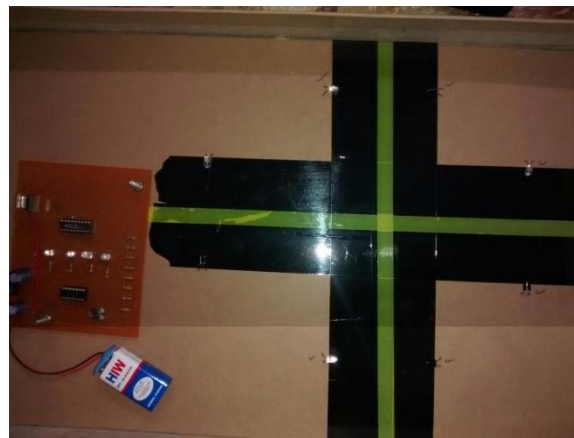
4. WORKING:

In this system the power circuit is same for both the receiver and transmitter. In this 220 Volt AC current is directly given to the step-down transformer which steps down to 9 volt. This 9 volt is further given to the regulator which further lowers the voltage to 5 volts circuit. After this the voltage is sent to analog to digital convertor which converts the AC voltage to DC voltage So that 5 volt non fluctuating current is given to the transmitter and receiver We are using 2x16 LCD display on which the available parking slot will be displayed.

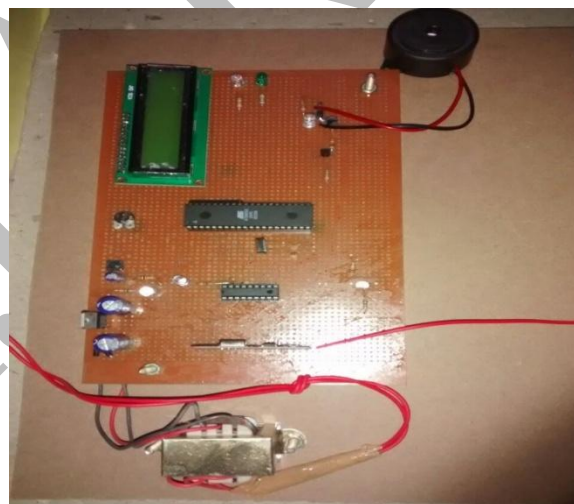
In this system we have a transmitter circuit which compromises of RF sensors and LED and Photodiode .In this when there is car parked between the circuit, the LED light is not directly given to the photodiode so the circuit is not completed and positive current is flow between the circuit. Thus the transmitter does not tell about the space. Now when the car is not parked between the circuit the light is directly given to the photodiode. Thus the photodiode is ON and gives a negative current. Now this negative current is given to the circuit thus completing it.

In transmitter after the voltage is applied to the microcontroller the information from the microcontroller about the parking slot is sent parallel to series convertor which sends a serial information signal to the receiver side. On the receiver side this serial information is converted to parallel and then supplied to the microcontroller which displays the availability of parking slot in the LCD

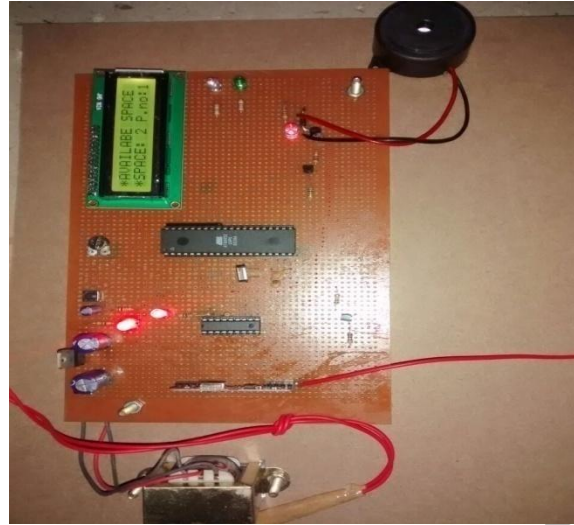
Transmitter



Receiver



5. Result



6. Future scope

A complete system should encompass remote reservations and real-time directional guidance for patrons and detailed utilization and parking infraction reports for managers. A central processing system will maintain the current state (Available/Reserved/Occupied) for each space. This central system can then update changeable messaging signs within and outside of the ramp with status information. It will also communicate with a web system that will allow the users to view available parking spaces in the ramp, and make reservations. This website could easily be designed in a way that allows access via cell phone web browsers thus enabling patrons to reserve a parking space from anywhere

7. REFERENCES

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