



Automatic Car Parking Detecting Empty Slot

R. Srinivasan¹, A.Deepa², E.Ravikumaran³, T.Ranjithkumar⁴, A.Mustaq Ahamed⁵

Assistant Professor, Department of EEE, Muthayammal College of Engineering, Rasipuram, Tamil Nadu, India^{1,2}

UG Scholar, Department of EEE, Muthayammal College of Engineering, Rasipuram, Tamil Nadu, India^{3,4,5}

ABSTRACT- Automatic car parking system is very good substitute for managing car parking area. Since in modern world, where space has become a very big problem and in the area of miniaturization it's become a very crucial necessity to avoid the wastage of space in modern, big companies and apartments etc. In space where more than 100 cars need to be parked, it's a very dicircuit task to do and also to reduce the stage of area, this system can be used. This Automatic Car Parking enables the parking of vehicles-orator our and thus reducing the space used. Here any number of cars can be park according to requirement. These makes the systems modernized and even a space-saving one.

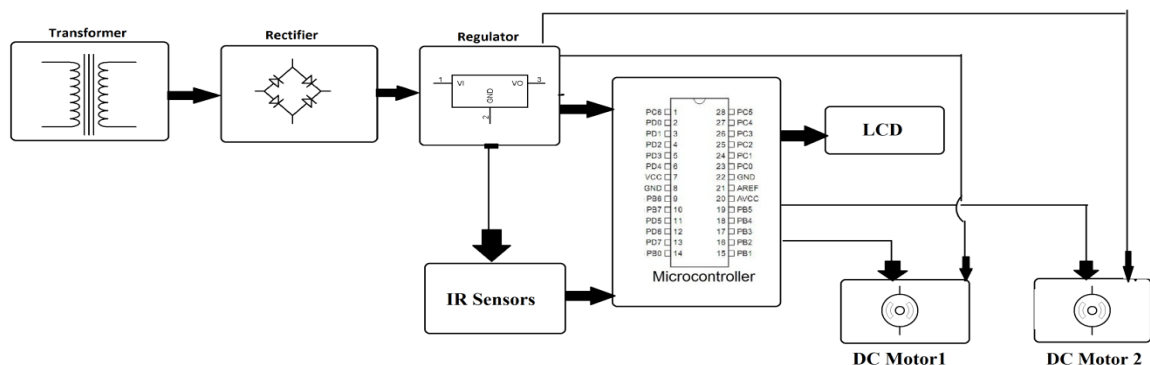
I.INTRODUCTION

Automatic Car Parking System here we work on the thought of display the number of parking available at parking site. In this when you at parking site, you see the number of parking slots and available parking slots at the entry gate. C.Nagarajan et al [2,4,6,8,10] has studied if parking is available, the gate is open for few seconds and that particular slot is marked as unavailable. When you exit from this same process is followed and particular slot is made available for next customer.

FUNCTIONAL DESCRIPTION

This project can be implemented using the following blocks. For easier understanding of the blocks are mentioned below

II. BLOCK DIAGRAM



International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Website: www.ijareeie.com

Vol. 9, Issue 3, March 2020

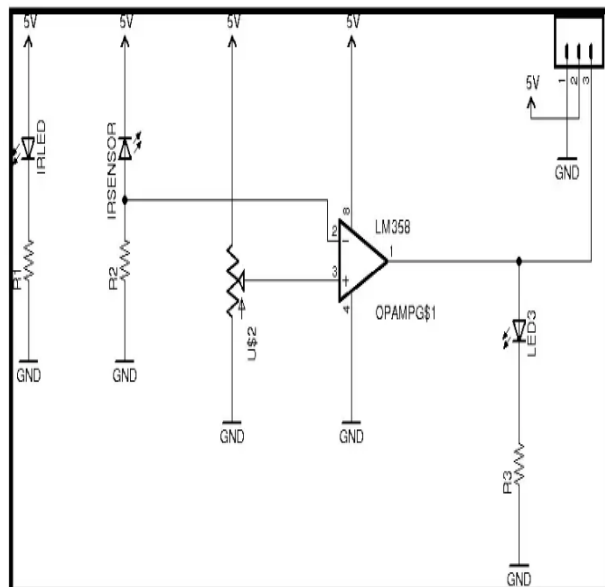
PROXIMITY SENSORS

These are placed inside the parking slot to detect the presence of the vehicle in slot, which will be used to process when a new vehicle requests parking slot which also consists of IR diodes and phototransistors.

IR LIGHT EMITTER

It consists of a pair of Red IR Lights that continuously emit long distance directed IR lights. This light falls on a pair of LDRs.

IRMODULE TRANSMITTER AND RECEIVER CIRCUIT DIAGRAM GIVEN BELOW



IR LIGHT RECEIVER

It consists of a pair of LDR (Light Dependent Resistance). The LDR consists of special materials whose resistance is dependent on the amount of the light falling on it. This means as long as the IR light is falling on it its resistance is low nearly 1k. As soon as this light is obstructed the resistance of this sensors increases (to nearly 8k) indicating some thing's presence between the emitter receiver pair.

COMPARATOR BLOCK

It consists of a comparator circuit made out of op-amp LM358. Its task is to convert the resistance state of LDR into voltage state understood by microcontroller.

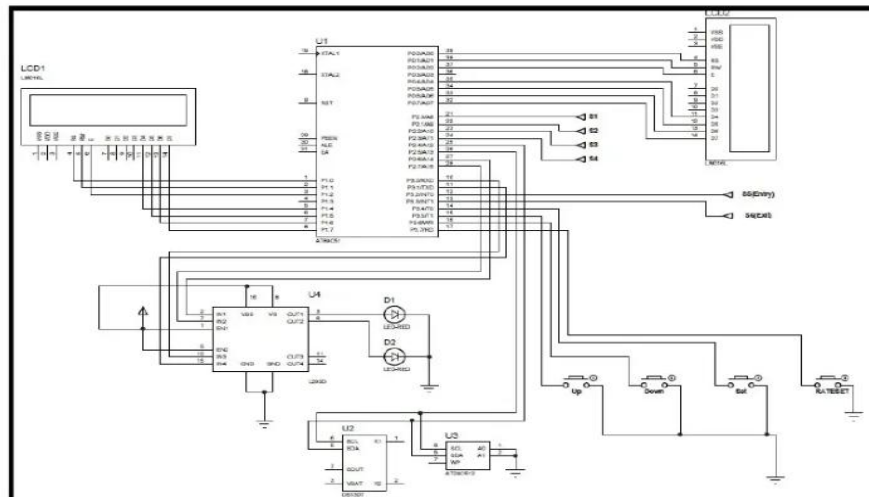
International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Website: www.ijareeie.com

Vol. 9, Issue 3, March 2020

III. CIRCUIT DIAGRAM



MICRO CONTROLLER BLOCK

Micro-controller takes the data from the comparator block. Based on this data it interprets the number of people that have crossed from one side to the other and vice versa. To build this system we will be using 8051 variant.

DISPLAY UNIT

It is 16*2 LCD that shows the number of people in the room at any particular instant. It also shows which appliance is being used and at what power they are being used.

APPLIANCES BLOCK

This block consists of outlets for DC motor. DC Motor is ON in one septic direction for 10 sec. and then ON in opposite direction for same 10 sec time interval for open and closed the gate.

SOFTWARE SPECIFICATIONS

Arduino Compiler

MC Programming Language: C

POWER SUPPLY BLOCK

This consist a Step down transformer which converts 220V Ac to 15V AC. In below circuit diagram, S1, S2, S3, S4 are the IR modules which are connected in slots of car parking systems & S4, S5 IR modules are used for Entry and exit gate.

IV. CONCLUSION

This paper has proposed a vacant parking slot detection and tracking system that fuses the sensors This paper has presented that 1) parking slot markings can be successfully detected and tracked by fusing two off-the-shelf parking aid systems, 2) parking slot markings can be reliably detected by combining sequential detection results, 3) occupancy of parking slot can be efficiently classified by treating each parking slot region as a cell of an occupancy grid.



ISSN (Print) : 2320 – 3765
ISSN (Online): 2278 – 8875

International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Website: www.ijareeie.com

Vol. 9, Issue 3, March 2020

REFERENCES

- [1] R.Srinivasan et.al have published a paper titled “Design and Implementation of Novel Three Phase Multilevel Inverter for Smart Grid” in the International Journal of Multidisciplinary Educational Research, Volume 9, Issue 1(3), January 2020.
- [2]C.Nagarajan and M.Madheswaran - ‘Stability Analysis of Series Parallel Resonant Converter with Fuzzy Logic Controller Using State Space Techniques’- Electric Power Components and Systems, Vol.39 (8), pp.780-793, May 2011
- [3]R.Srinivasan et.al have published a paper titled “Enhancement of Power Flow Control and Voltage Stability Using Unified Power Flow Controller” in the WJERT, Vol 5, Issue 2, March 2019.
- [4]E Geetha, C Nagarajan, “Induction Motor Fault Detection and Classification Using Current Signature Analysis Technique”, 2018 Conference on Emerging Devices and Smart Systems (ICEDSS), 2nd and 3rd March 2018, organized by mahendra Engineering College, Mallasamudram, PP. 48-52,2018
- [5]R.Srinivasan et.al have published a paper titled “IOT based smart home, security challenges, security Requirements and solutions” in the WJERT, Vol 5, Issue 2, March 2019.
- [6]C. Nagarajan, M.Madheswaran and D.Ramasubramanian- ‘Development of DSP based Robust Control Method for General Resonant Converter Topologies using Transfer Function Model’- Acta Electrotechnica et Informatica Journal , Vol.13 (2), pp.18-31, April-June.2013
- [7]R.Srinivasan et.al have published a paper titled “Design and Implementation of Multilevel Chopper using Bidirectional Control Technique” in the International Journal of Innovative Research in Science, Engineering and Technology(IJRSET) Vol. 7, Issue 10, October 2018.
- [8]C.Nagarajan, M.Muruganandam and D.Ramasubramanian – ‘Analysis and Design of CLL Resonant Converter for Solar Panel - Battery systems’-International Journal of Intelligent systems and Applications (IJISA), Vol.5 (1),pp.52-58, 2013
- [9]R.Srinivasan et.al have published a paper titled “Analysis and Design of Solar Power Fed DC-DC SEPIC Converter” in the IJAREEIE, Vol 7, Issue 10, October 2018.
- [10]C.Nagarajan and M.Madheswaran - ‘Stability Analysis of Series Parallel Resonant Converter with Fuzzy Logic Controller Using State Space Techniques’- Electric Power Components and Systems, Vol.39 (8), pp.780-793, May 2011
- [11]R.Srinivasan et.al have published a paper titled “Analysis and design of series inverter based load reactive power compensation” in the International Journal of Innovative Research in Science, Engineering and Technology (IJRSET) Vol 4, Special Issue 6, May 2015.
- [12]K Umadevi, C Nagarajan, “High Gain Ratio Boost-Fly Back DC-DC Converter using Capacitor Coupling”, 2018 Conference on Emerging Devices and Smart Systems (ICEDSS), 2nd and 3rd March 2018, organized by mahendra Engineering College, Mallasamudram, PP. 64-66,2018
- [13]R.Srinivasan et.al have published a paper titled “Load Reactive Power Compensation using series inverter” in the International Journal of Applied Engineering Research (IAER), ISSN 0973-4562, Vol-10, Number 9, 2015.
- [15]R.Srinivasan et.al have published a paper titled “Unbalanced Load Correction using Active Filter” in the International Journal of Applied Engineering Research (IAER), ISSN 0973-4562, Vol-10, Number 9, 2015.
- [16]R.Srinivasan et.al have published a paper titled “Design and Analysis of Active Filter based Unbalanced Load Correction” in the International Journal of Innovative Research in Science, Engineering and Technology (IJRSET) Vol 4, Special Issue 6, May 2015.
- [17]R.Srinivasan et.al have published a paper titled “A Cascaded Multilevel H- Bridge Inverter for Electric Vehicles with Low Harmonic Distortion” in the International Journal of Advanced Engineering Research and Science (IJAERS) ISSN: 2349-6495, Vol-1, Issue-6, in the month of November 2014.
- [18]R.Srinivasan, M.Kannan and G.Neelakrishnan have published a paper titled “AC/DC SEPIC Converter for Non-Linear Controller” in the IJAREEIE, Vol 3, Issue 11, Nov 2014.
- [19]R.Srinivasan et.al have published a paper titled “Analysis of Low Power Dual Dynamic Node Hybrid Flip-Flop” in the International Journal of Advanced Engineering Research and Science (IJAERS), Vol-1, Issue-6, November 2014.
- [20]R.Srinivasan et.al have published a paper titled “A Hybrid Text Classification Approach Using Knn and Svm” in the International Journal of Advances Foundation and Research in Computer (IAFRC), ISSN: 2349-6495, Volume 1, Issue 3, March 2014.
- [21]R.Srinivasan and D.Vinoth have published a paper titled “Protection of Wireless Sensor Network from Gang Injecting False Data Attack” has been published in International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering (IJAREEIE) Vol. 3, Issue 2, pp.7301-7311, February 2014.
- [22]R.Srinivasan et.al have published a paper titled “Probabilistic Based Rock Texture Classification” has been published in International Journal of Advances in Engineering & Technology (IAET), Volume 6 Issue 6, pp. 2439-2447, Jan. 2014.
- [23]R.Srinivasan, R.Vinoth and D.Kalidass have published a paper titled “Remote Admittance & Demonstrate For Client Control Mobile Computing” has been published in International Journal of Scientific Engineering and Technology (IJSET) Volume No.3, Issue No.1 pp : 13-16, 1 Jan 2014.
- [24]R.Vinoth, R.Srinivasan, D.Vimala and M.M.Arun Prasath have published a paper titled “Characterization of Color and Texture Features from Retrieved Images using CBIR” has been published in International Journal of Research in Advent Technology (IJRAT), Volume 1, Issue 5, pp. 61-67 Dec 2013.
- [25]R.Srinivasan et.al have published a paper titled “FPGA Implementation of Efficient Modified VLSI Architecture for Multiplier” has been published in International Journals of latest research in Engineering and Computing (IJLREC), Volume 1, Issue 2, pp.7-10, Nov-Dec 2013.
- [26]R.Srinivasan and S.Ravindar have published a paper titled “Stability Analysis of ARM Based Control of Brushless DC Motors Using Digital PWM Technique” has been published in International Journal of Advanced Research in Electronics and Communication Engineering (IJARECE) Volume2, Issue11, pp.880-884, Nov 2013