SMART CAR PARKING SYSTEM FOR VEHICLES

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ABSTRACT
In day to day life there's massive drawback of parking of cars in metro cities attributable to lack of parking areas. So now a days we are constructing new system to solve this problem named as multilevel automatic parking system for vehicles, Robotic automotive parking system. That the project work is to develop a automotive parking system that permits 6 to 26 cars inside an area of 32.17 sq.m with security of fingerprint ID for licensed entry solely. This model is very helpful for development in numerous areas like automation i.e. PLC, micro-controllers and automation.
KEYWORDS: PLC, PIC, LCD.

I. INTRODUCTION

The rotary parking system for vehicle is affiliated to good automobile parking systems for vehicles. The normal systems that are used earlier are multilevel or multistage parking system that is currently changed into rotary parking system as a result of the normal automobile parking system need massive area. This problem is solved by design of rotary automobile parking system. It provides the benefits of versatile operation with-out the requirement of any extra security and fewer probability of damage. The model uses complex components, it's effortless to congregate and is reliable than the automobile parking system used earlier. Our model is impeccably designed to park many cars in area. This rotary structure is ultra-practical to park 6 cars within the area of 2 and hold many cars with potent use of available area in urban and metro areas. Parking areas available right now are not competent to hold large number of car. Comparing existing parking system with new system we can say that it's thrifty, and trustworthy wherever parking of car is the main problem. This parking system is completely machine-driven with the user distinctive interface.

II. LITERATURE SURVEY

A. TRADITIONAL CAR PARKING SYTEM FOR VEHICLE

The first type of parking is the ancient one, where the parking slot is designed by drawing white paint or yellow paint lines on the ground. The new automobile parking system is very resemblant to the mechanical parking handling and document recovery. The driver drives the automobile in the allotted space and gets parked automatically to the required place. Mechanical automobile lifters transport the automobile to higher level to appropriate parking place. Vehicles are often simply transported vertically and horizontally to empty parking place simply until the empty place is loaded. For taking automobile the method is reversed and also the automobile is taken back to the place wherever the automobile was left by the driver for the parking.

B. ROBOT CAR PARKING SYSTEM FOR VEHICLE

Dubai is that the foremost metro city of handling 756 automobiles at a time. Robotic automotive parks being programmed for reducing parking issues in UAE, once the driver let the vehicle and goes and collect price ticket, the wall of garage drops and therefore the automobile is taken

to corresponding elevator, that takes the automobile to adjacent self-propelled trolley. Then the automotive is additional taken to the corresponding parking structure. The whole time taken by the system to park one automobile is 3 minutes. This technology needs no finding of vacant area for parking. All you need is to drop your automobile to corresponding entry station and leave your automobile to be picked up and placed for parking. When you return to parking slot then the automobile would be automatically delivered to you.

C. ROTARY SMART PARKING SYSTEM FOR VEHICLE

In this machine-driven system is employed to rotate at a particular angle. Parking and retrieving is incredibly simple and quick as a result of use of rotary system. Parking and recovery of cars is in rotating nature that is incredibly essential. This method needed less house that reduces overall price. This method allows fast machine-driven parking and retrieval of automobile in less time. The surface house needed is compeer to car parking zone of 2 cars solely. This method is most fitted for parking in offices, malls and similar places.

III. METHODOLOGY

This project deals with manufacture of a Parking System for vehicle. Excess use of land is prohibited in metro cities. Main aim of this project is to develop a operating model of a automobile parking system for parking cars among an oversized parking lot. The 230v, 50Hz offer is applied to the electrical device. The step down electrical device are employed in this method. In step down electrical device the facility convert 5V and 12V. In this system Rectifiers are used attributable to rectification is that the conversion of AC to DC. Regulators are used attributable to automatic maintain a relentless voltage level. The power is supplied to the microcontroller. Once LCD is ON then user gets to scan his finger for security purpose. The place that is empty will proceed to ground level, that vacant place can automatically stop by limit switch. This overall system is operated using geared motor.

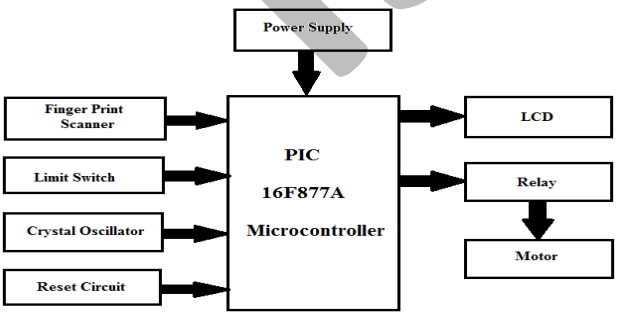


Fig. 1: Block Diagram

IV. HARDWARE DETAILS

A. PIC 16F877A MICROCONTROLLER

Early models of PIC had read only memory (ROM) or field programmable EPROM. For program storage, some with provision for erasing memory. All current models use non-volatile storage for program storage, and newer models enable the PIC to perform itself. Program memory and data memory are separated. Data memory is 8, 16, and 32 bit wide. Program directions vary in bit count by family of PIC, and should be 12, 14, 16, OR 24 bits long. The instruction set additionally varies by model, with a lot of powerful chips adding directions for digital signal process functions. This processor is incredibly convenient to use, the cryptography or programming of this controller is additionally easier. The most important advantage is that it is write erase as repeatedly as possible as a result of it use non-volatile storage technology. It's a complete range of forty pins and there thirty three pins for input and output.

Photograph 1: PIC 16F877A Microcontroller

B. LCD

A liquid crystal display (LCD) is interfaced to microcontroller that's accustomed display the meter reading, date, time etc. The 2x16 bit LCD interface card with supports each modes 4-bit and 8-bit interface, and additionally facility to regulate distinction through trim pot. Liquid crystals don't emit light directly. It's one sort of flat panel show.

Photograph 2: LCD

C. TRANSFORMER

Step down transformers area unit designed to step down the voltage. the first voltage given to this electrical device is high as compared to secondary. Voltage applied to the present form of electrical device is reduced at secondary winding. As an example, a step down electrical device is

required to use a 110V product in an exceedingly country with a 220V supply. Voltage is reduced by using step down transformer that convert electrical voltage from one level to a lower level. They will consist of options for electrical isolation, power distribution, and management and instrumentation applications. Step down transformers works on the principle of magnetic induction. These form of transformers area unit made up of 2 or a lot of coils of insulated wire wound around a core product of iron. once voltage is applied to at least one coil (frequently referred on primary or input) it magnetizes the iron core, that induces a voltage within the different coil, (frequently referred on secondary or output). the number of voltage transformation is determinative turn's magnitude relation of the 2 sets of windings. ex. two hundred turns in first and a hundred turns the secondary winding, a magnitude relation of 2:1.

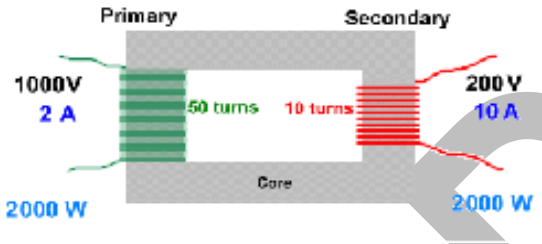
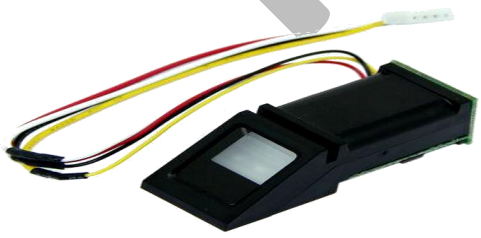


Fig. 2: Transformer

D. FINGERPRINT SENSOR

It is one optical detector which can create fingerprint detection and verification. You'll additionally scan new fingers directly - up to 162 finger prints is hold on within the onboard nonvolatile storage. There is a red LED inside the lens which can illuminate throughout taking photos in order that you recognize it's operating condition. It's simple to use and far and away the simplest fingerprint detector you'll get. Fingerprint identification, additionally cited as individualization, involves Associate expert, or automatic processing system operational beneath threshold evaluation rules, crucial whether or not 2 friction ridge impressions are possible to own originated from the identical finger or palm.



Photograph 3: Fingerprint Sensor

E. RELAY

A relay is one kind of switch that uses an electromagnet to maneuver the switch from the OFF to ON position rather than an individual moving the switch. It takes a comparatively less of power to run a relay, however the relay can manage something that pulls way more power. A relay is employed for controlling purpose .

Photograph 4: Relay

Table 1: The function of each system block

Sr. No.	System Block	Function
1	Microcontroller	As data processing center
2	LCD	As display
3	Transformer	As power supply
4	Fingerprint Sensor	As biometric scanner
5	Relay	As protection device

V. CONCLUSION

This is an ongoing project. This paper gives basic idea of how to park vehicles in a smarter way. This project is based on biometric scanner. This project is specially designed and implemented for security of vehicles, also this system reduces the space as compared to existing parking system. The system has been successfully designed to eliminate the requirement of large space for vehicle parking. Future scope of our project is very high.

VI. ACKNOWLEDGEMENT

We would like to take pleasure in thanking SKN Sinhgad College of Engineering for giving this opportunity to develop this project. With great pleasure, we wish to thank Prof. A.A.Chandane (Project Guide) for her valuable guidance and cooperation as and when needed. We would also like to express our gratitude to Prof. S.P. Ganjewar (HOD-Electrical Department, SKNSCOE) for his valuable co-operation.

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