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Research Article

REVIEW ON SMART PARKING AND THEFT ALERT SECURITY SYSTEM USING RADIO FREQUENCY IDENTIFICATION

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ABSTRACT

The automatic parking system based on vehicle number plate recognition. The target of this investigate is to grow and utensil an automatic parking system that will rise benefit and pledge of the public stick lot. The non segregated applications of passive radio frequency identification (RFID) and license plate recognition (LPR) are presented without pester of using exhibiting card. The instinctive parking system will able to have small electromagnetism of humans and use no magnetic card and its devices. The system used image processing of identify number plates for operation of parking and billing system. Overall, the systems run with already programmed controller to make minimum human involvement in parking system and ensure access control in limited places. The rules to be followed by the technology based method for license plate extraction from car images followed by the segmentation of characters and reorganization based on number plate information. The plan to join the needs of concert and can be usually relevant to the concerned areas.

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INTRODUCTION

Now a days we are facing many problems in parking our vehicle in the famous areas such as MALLS, DEPARTMENTAL STORES, etc...so to solve such problems we used that the RFID & LPR system to find the parking place by using the IR SENSOR.[1] And the major problem faced by the vehicle owners & security persons in the parking place is that the vehicles are hacked or theft by some persons. To overcome such problem we used the buzzer in gate section & vibrator in parking lot (space) section.

The RFID system [2] is used by the customer who is regular for the malls or departmental stores will have the RFID tag & the RFID tag will be read by using the RFID [3]-[6] reader then the customer easily enter the mall or departmental store & the customer can register parking space & the gate of that lot will be opened only for the person who is registered for it.

The other is LPR [7]-[9] system which can be used by all customers who is newly entering into that mall or departmental store by using his/ her License Plate Recognition (LPR). Once he/she is registered in the gate section then in the parking section the gate of that parking lot will be opened only for the person who is registered by the LPR system. The parking space

will be secured by using the buzzer & vibrator. The buzzer is used in the gate section to alert the security persons & the vibrator is used in the parking section to vibrate when somebody is touching the vehicle. The principle of this protrude is to find lots (space) is easy. Theft will not be occurred because we are using vibrators & buzzer for security. Then the security persons for monitoring the parking system will be reduced.

Microcontroller operating fast is DC-20 MHz clock input DC-200 ns instruction cycle. Pin out compatible to other 28-pin or 40/44-pin PIC16CXXX and PIC16FXXX microcontroller's 0-bit, up to 8-channel Analog-to-Digital converter (A/D), Watchdog Timer (WDT) with its own on-chip RC oscillator for thing injury is used. First section is Gate Section-Microcontroller, OCR (Optical Character Recognition) and RFID Reader, ZIGBEE and RF Transmitter another section is Parking Lot Section - Microcontroller, RFID Reader, ZIGBEE, IR sensor, Motor, Light.

Propound Vehicle Parking System

In this propound vehicle parking system, the vehicle owner has to first register the vehicle with the parking owner and get the radio frequency ID tag. When the car has to be parked, the

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radio frequency ID tag is placed near the radio frequency ID reader, which is installed near the entry gate of the parking lot. As soon as the radio frequency ID tag is read by the reader, the system automatically detects the minimum amount from the radio frequency ID tag and the camera placed in the entry gate will check and scan the number plate of the vehicle and the entry gate boomer opens to allow the car inside the parking area. Similarly, the door is opened at the exit gate while showing the radio frequency ID card and number plate authentication. Based on the parking time, the system will detect amount from the card. The system also offers the facility to recharge the amount for each radio frequency ID tag. Unregistered user's number plate is detected through optical character recognition technology License plate recognition applies image processing and character recognition technology to identify vehicles by automatically reading the license plates. Fundamentally, to construct this system it consists of many major parts which are vehicle number plate extraction, characters segmentation, and characters recognition. Quiver is used for in case anyone attacks the vehicle then automatically buzzer is alerted. No manual processing is involved in this project. In addition, the system provides security.

Proposed block of Gate section

The propound block of gate sections are shown below fig 1. The liquid crystal display screen is an electronic display module and find a large range of applications. A 16x2 liquid homogeneous solid substance display is very basic module and is very commonly used in various devices and circuits. These spacelab are preferred over seven segments and other multi segment light emitting diodes. The reasons being: liquid homogeneous solid substance are inexpensive; easily programmable; have no limitation of displaying special & even custom characters.

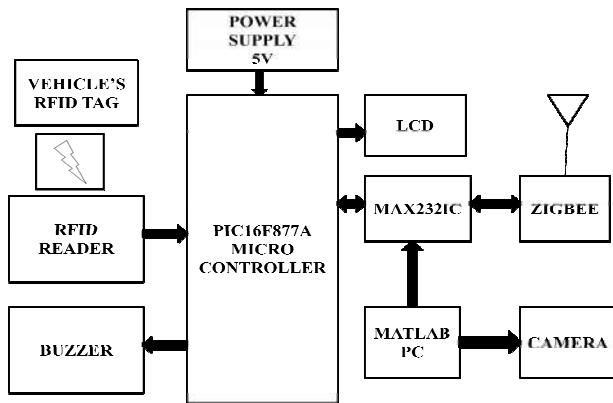


Fig 1 Gate section

The KA78XX/KA78XXA series of three-extreme optimistic particular are available in the TO-220/D-PAK package and with several fixed output voltages, making them useful in a big range of applications. Every type employs features current limiting, thermal shut down and safe operating area protection, making it essentially non breakable. If sufficient heat descend is provided, they can deliver over 1A output current. Although designed primarily as fixed voltage regulators, these devices can be used with outward components to obtain adjustable voltages and currents.

Radio Frequency recognition introduced one major barrier before it could become a probable technology; finding a

acceptable power source. It took hardly thirty years for technology and research to cause interior power sources for radio frequency ID tags and chips.

The Electronic Product Code is the next evolution of product identification, utilizing radio frequency ID technology to identify objects in a supply chain. The Electronic Product Code promises to become the standard for global radio frequency ID usage. Radio frequency ID tags have a longer read range than, e. g., barcodes, Tags can have read/write memory capability, while barcodes do not, An radio frequency ID tag can store large amounts of data additionally to a unique identifier, Unique item identification is easier to implement with radio frequency ID than with barcodes

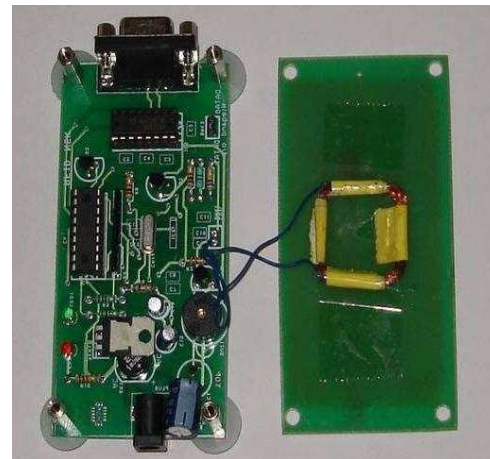


Fig 2 Gate section circuit board

The buzzer is an audio analog signalling device, it is also electromechanical device. Critical applications of buzzers are beepers, alarms, timers and confirmation of user input such as a mouse click or keystroke.

Propound block of Parking Lot section

The initiate block of parking lot sections are shown below. There are three memory blocks in each of the PIC16F87XA devices. The program memory and data memory have separate buses so that concurrent access can occur and is detailed in this section. The PIC16F87XA machine have a 13-bit program counter competent of addressing an 8K word x 14 bit program storage space.

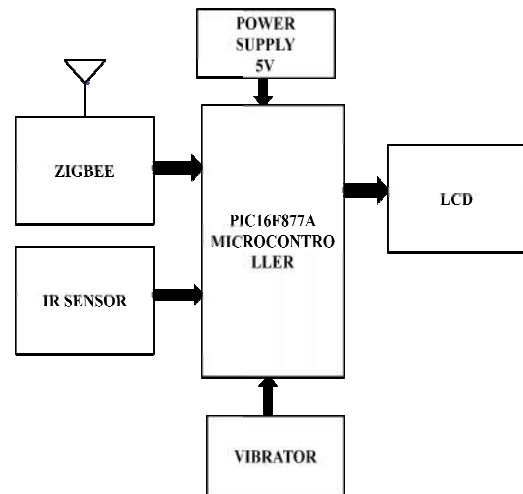


Fig 3 Parking lot section

The PIC16F876A/877A machines have 8K words x 14 bits of Flash program memory, while PIC16F873A/874A devices have 4K words x 14 bits. Accessing a location above the demanding implemented address will cause a wraparound. The Reset vector is at 0000h and the interrupt vector is at 0004h

The high level communication protocol is one of the heart standards of zigbee protocol formulated by the related function force below the IEEE 802.15 working group. The fourth in the series, Wide Personal area network Low cost zigbee is the latest and provides specifications for devices that have minimum data rates, occupies very minimum power and are thus characterized by long battery life. Other standards like Bluetooth and IrDA address high data rate applications such as voice, video and Local area network communications.

Zigbee is a correct-based technology designed particularly to remove the proliferation of unique remote controls developed to touch the originate brusquely for competent wireless networking between many low-power devices. IEEE 802.15.4 standard for data communications with business and consumer devices low-cost, low-power, wireless mesh networking standard largely used in wireless control and monitoring applications next generation automated manufacturing permitting for communication between devices to a middle computer.

The Infra red sensor is a very smart machine that works by reflecting infrared light off of an object and detecting the returning with a photo-transistor that is adjust to the same frequency of light. The light emitting diode is typically next to the photo-transistor; however, the emitted light from the light emitting diode does not directly shine into the photo-transistor. Corresponding values for resistance are in series with both the light emitting diode to resist current and the photo-transistor in order to show a voltage drop based on distance to the object in front of the sensor. The powerful range of the sensor is a few centimeters. Object discovery can be enhanced by placing a reflective surface between the object and the sensor. When the object moves between the sensor and return surface, a many drop will be interpose in the output signal Quiver sensors are deployed in a number of applications to measure acceleration and/or vibrational activity. Quiver sensors can be deployed to intent whether the machinery is operating correctly. Quiver sensors can be useful for monitoring the condition of rotating machinery, where excessive quiver could indicate excessive loading, inadequate lubrication wear. Such sensors are also intent in related applications. Quiver sensors are utilized as knock sensors in inside combustion engines. In order to assure that an engine is operating below optimum conditions, it is necessary to perfectly monitor its actual operating state. One device known to be highly useful for this purpose is the engine quiver sensor.

Quiver sensors are commonly applied in alarm systems to activate an alarm whenever the devices to which they are attached are touched moved. The quiver sensors are commonly placed in windows of buildings to sense glass breakage and in car alarm systems to detect vehicle tampering. Commercial vibration sensors use a piezoelectric ceramic strain transducer attached to a metallic proof mass in order to respond to an externally imposed acceleration. Piezoelectric vibration sensors used for detecting vibration from various vibration sources are

generally classified into two large types, resonant type and non resonant type. An exhibitive quiver sensor or an accelerometer is builded from a capacitor one plate of which is a proof mass, with the other plate fixed to a substrate. Quivers are carefully measured using voltage quiver detecting elements, such as voltage accelerometers, positioned on machinery at strategic places.

RESULT

The smart parking and theft alert security system is analysed by using RFID ID card, PIC microcontroller and the Zigbee device. All the vehicles are automatically find the empty space and parking on the allotted places. The automatic parking and security system model shown in fig 4 and fig 5.

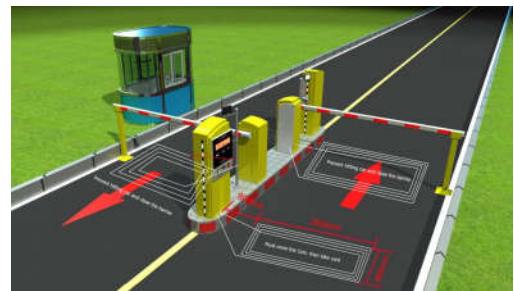
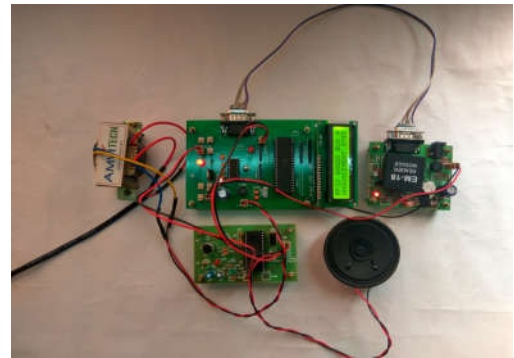


Fig 4 Automatic parking system model

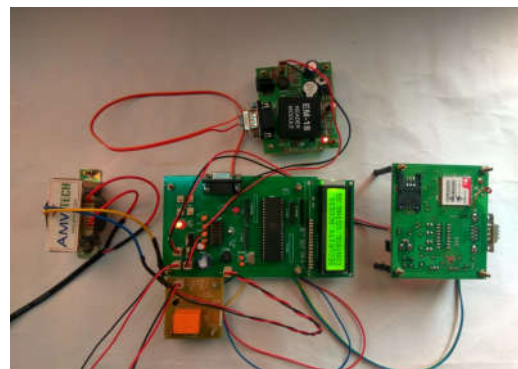


Fig 5 Security system model

CONCLUSIONS

The concept of Smart Cities has always been a dream for humanity. Since the past couple of years large advancements have been made in making smart cities a reality. The growths of Internet of Things and Cloud technologies have given rise to new possibilities in terms of smart cities. Perfect parking amenity and ridden management systems have every time been at the central of constructing smart cities. In this paper, we address the issue of parking and present an IOT based Cloud integrated smart parking system. The method that we put

forward provides real time information concerning obtainable of parking slots in a perfect area. Users from remote locations could book a parking slot for them by the use of our mobile application. The efforts made in this paper are indented to improve the parking facilities of a city and thereby aiming to enhance the quality of life for the people.

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