



Rfid based gate entry control system

Mr.R.Praveenkumar¹, S.Srivarshini²,T.Manju³,M.Jotheeswaran⁴

¹Assistant professor,Electronics &Communication Engineering

²Student,Electronics &Communication Engineering

³Student,Electronics &Communication Engineering

⁴Student,Electronics &Communication Engineering

Ebet Group Of Institutions, Kangayam

srivarshinisubramaniam@gmail.com

ABSTRACT:

In recent years, there have been rise in the number of applications based on Radio Frequency Identification (RFID) systems. RFID is an auto identification technology which uses Radio Frequency (between 30KHz and 2.5GHz) to identify object remotely. It has been successfully applied to different areas as diverse as transportation, health-care, agriculture, and hospitality industry to name a few. RFID technology facilitates automatic wireless identification using electronic passive and active tags with suitable readers.

This paper deals with RFID based automatic gate entry control system (GECS) which is developed for the organisation to monitor and record the entry of the bus and driver with its timing related activities. Entire system is developed with low frequency RFID reader and passive tag at the one side and network based software application running at the other side. This RFID reader and Tag performs the operation to monitor which bus and driver entered or left the organisation with their timings. The entire information is stored in the computer by

interfacing (serial interface RS232) with the reader. The updated information in PC is sent as an email to the higher authority which is used to monitor the information at anytime and anywhere.

INTRODUCTION:

RFID based gate entry control system is the one in which entry of authorized driver in any institutions or organisation can be registered. It is mandatory to know which person drives which bus and what time they enter the organisation. For this the system is placed at the entry of the organisation. This system, consists of two main components, one is RFID reader another one is active tag. This system works at high frequencies in the range 200kHz to 600kHz. Entire system is connected to PC by serial converter where the monitoring the identification can be displayed in the window.

RELATED WORKS:

Many researchers have utilised RFID technology in developing access control system. Gate entry control system has developed an RFID based monitoring

system using RFID reader, tag and system. This system generally uses active RFID tag. Frequency range of each tag varies.

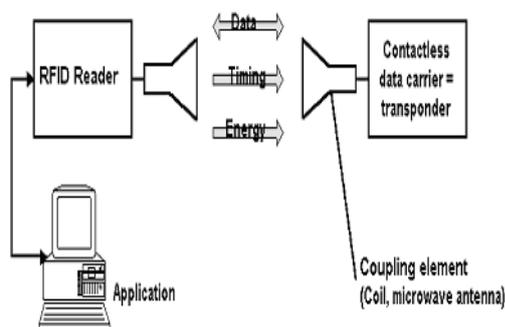
The tag is of two types.

- Fixed RFID.
- Movable RFID.

Fixed RFID is used as a bus tag and movable RFID reader is provided for a driver. VB is used in the system. The time is set already. Once both the tag reaches the range, the reader senses the tag and sends the information to PC. All the information are stored in the system and at once when the set time over the information are sent to the email address which is already entered. In this sender mail, receiver mail, set time are registered already.

SYSTEM COMPONENTS

An RFID (Radio Frequency Identification) system is always made up of two components: the transponder, which is located on the object to be identified. The detector or reader, which, depending upon design and the technology used, may be a read or write/read device.



A)RFID Tag:

IPC80 passive RFID tag operating at a frequency of 125KHz is issued the user. The tag transmits information to the reader in ASK format.

B)RFID reader:

Proximity card reader with varying operating frequency is used. It senses even at the distance of 20m. The reader can be easily installed and provides the tag information serially in RS232 format and is suitable for indoor as well as outdoor operations.

C) Microcontroller:

AT89S52 microcontroller is used. It is a low power, high performance CMOS 8bit microcontroller with 8k bytes of insystem programmable flash memory, the device is manufactured using Atmel's high density non-volatile memory technology. It also provides watchdog timer, two data pointers, three 16 bit timer/counters, clock circuitry.

D)Optocoupler:

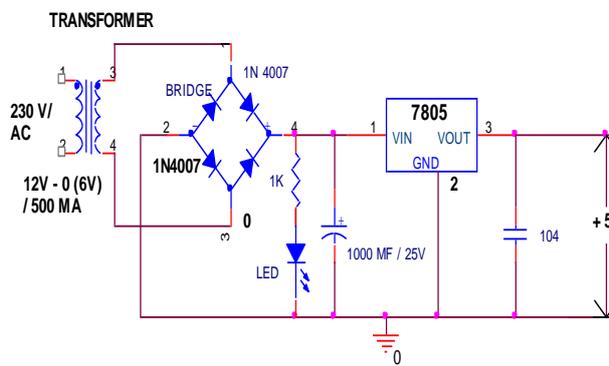
The MCT2XXX series optoisolators consist of a gallium arsenide infrared emitting diode driving a silicon phototransistor in a 4-pin dual in-line package.

E)Power supply:

Available power source is an Ac voltage arrives at 230V. Since our electronic circuits require only very minimal voltage and current we use step down power transformer. Step down transformer is designed in such a way that the input is 230V and output of 12V. Another thing is, that electronic circuits operate in DC where as available output of transformer is Ac of 12V. So rectifier

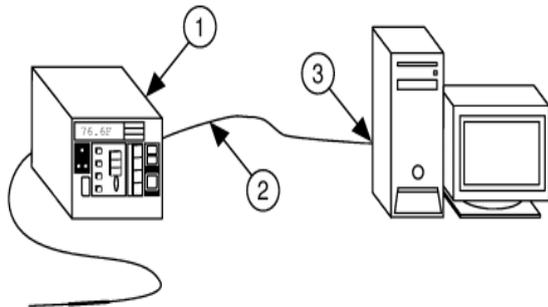
circuit is used to convert AC to DC. Rectifier circuit consists of four diodes formed in bridge fashion so as to convert incoming AC to DC.

CIRCUIT DIAGRAM OF POWER SUPPLY UNIT



F)MAX232:

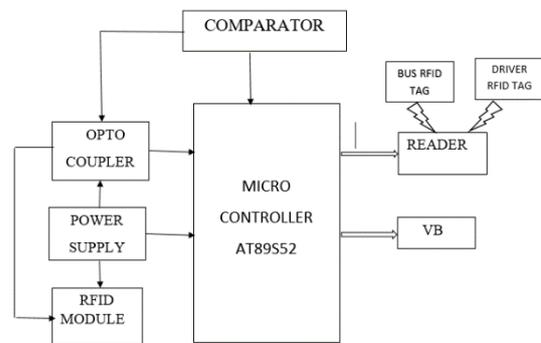
Serial communication is a popular means of transmitting data between a computer and a peripheral device such as a programmable instrument or even another computer. Serial communication uses a transmitter to send data, one bit at a time, over a single communication line to a receiver.



RS-232 stands for Recommend Standard number 232 and C is the latest revision of the standard. The serial ports on most

computers use a subset of the RS-232C standard. The full RS-232C standard specifies a 25-pin "D" connector of which 22 pins are used. Most of these pins are not needed for normal PC communications, and indeed, most new PCs are equipped with male D type connectors having only 9 pins.

BLOCK DIAGRAM:



SOFTWARE DESCRIPTION:

The software consists of two segments

1. Embedded c is used by the hardware that is RFID receiver (fitted in bus) and transmitter (RFID tags) that look ups up the specified table of item and maps the product with price.
2. VB is used on the front end to display the driver entry and bus entry at the same time. VB has to ensure simpler user interface and embedded C must ensure accurate detection.

SYSTEM DESCRIPTION:

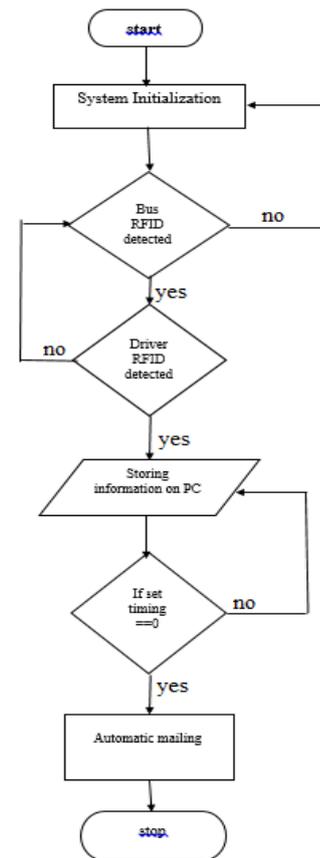
RFID reader is first initiated by giving a power supply. The set time, sender mail id and receiver mail id are given in the created VB.net. Reader frequently searches for the detection of RFID tag. Once RFID tag is detected it

reads the information. First it reads the bus RFID tag and then it reads the driver RFID tag. The sensed information is displayed on the VB sequentially through microcontroller. All the information are stored on the PC. Stored information are sent as an email to the particular receiver when the set time is reached. So that the receiver can know the details of driver entry at any place.

(A screenshot of front end display)

ALGORITHM:

- Step1: Start.
- Step2: Initialize System.
- Step3: search for RFID.
- Step4: check RFID tag.
- Step5: Read related data from memory.
- Step6: Display and store in PC.
- Step7: Checking for set timing.
- Step8: Automatic mail sending.
- Step9: Print the Bill.
- Step10: Stop.



CONCLUSION:

Radio Frequency Identification (RFID) systems. RFID is an auto identification technology which uses Radio Frequency (between 30KHz and 2.5GHz) to identify object remotely. In this project it useful to monitor the bus entry with corresponding driver entry at any time at anyplace by viewing the mail. It reduces the man power and time to monitor.

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