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# EXAMINATION ROOM ALLOCATED SYSTEM BY USING RFID TECHNOLOGY

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## ABSTRACT

The main objective of this project is to develop Associate in Nursing embedded system, that is employed to verify and attest the licensed and show the area variety. The tag's data is hold on electronically. The rfid tag includes a tiny low rf transmitter and receiver. Associate in Nursing rfid reader transmits Associate in Nursing encoded radio emission to interrogate the tag. The tag receives the message and responds with its identification data. several rfid tags don't use electric battery. Instead, the tag uses the radio energy transmitted by the reader as its energy supply. The rfid system style includes a way of discriminating many tags which may be inside the vary of the rfid reader. Whenever the scholar enters into the examination center, he must keep his rfid tag to the reader that is hooked up to our microcontroller primarily based embedded board. And enters the watchword (if necessary, their roll variety is password) through the data input device interfaced. At that moment the reader can checks weather the knowledge of the scholar is correct or not and so it'll plan to show the scholar space variety on {lcd|liquid crystal show|LCD|digital display|alphanumeric display} display. If the knowledge of the scholar is correct then hear permissible within otherwise he won't allow within and switches on the buzzer. the knowledge of the scholar are send to the microcontroller through one wire protocol. and also the data of the access system are displayed on the liquid crystal display that we tend to embedded to our board.

**Keywords: RFID, AT89S52 Microcontroller.**

## 1. INTRODUCTION:

RFID (Radio Frequency Identification) technology is associate rising technology[1], utilized in a good vary of applications, could be a member within the family of Automatic Identification and knowledge Capture (AIDC) technologies that is quick and reliable suggests that for identification of objects. The RFID consists of 2 main components: The inquisitor (RFID Reader) that transmits and receives the signal and also the electrical device (tag)that's connected to the item. In associate RFID [16] system, RFID tags area unit "interrogated" by associate RFID reader. The tag reader generates a oftenness "interrogation"

communicates with the tags. The reader additionally incorporates a receiver that captures a reply signal from the tags, and decodes that signal. The reply signal from the tags reflects, the tag's knowledge content. The reply signal is made as passive "backscatter" associate RFID tagconsists of a minute silicon chip and antenna [1]. The RFID alone has varied application however once is spliced with microcontroller the boundaries expands additional.

**RFID is of three types. They are**: 1.Passive (using no battery)

[2] Active (with an on-board battery ).

Automatic identification of tools in numerically controlled machines - to facilitate condition observation of tools, to be used in managing tool usage and minimising waste thanks to excessive machine wear. Identification of product variants and method management in versatile manufacture systems. Sport time recording Electronic observation of offenders reception Vehicle anti-theft systems and automotive immobilizer variety of things influence thesuita bleness of RFID for given applications. the applying wants should be fastidiously determined and examined with reference to the attributes that RFID and different information assortment technologies ca n give. Wherever RFID is known as a challenger more issues got to be created in respect of application surroundings, from associate magnetic force posture, standards, and legislation regarding use of frequencies and power levels. however none of the systems ne'er tried to develop a system aiding communication hall seating arrangement

## .1.1 RFID:

RFID[1], its application, standardization, and innovation area unit perpetually dynamical. Its adoption remains comparatively new and therefore there area unit several options of the technology that aren't well understood by the final public. Developments in RFID technology still yield larger memory capacities, wider reading ranges, and quicker process. It's extremely unlikely that the technology can ultimately replace code - even with the inevitable reduction in raw materials not to mention economies of scale, the microcircuit in Associate in Nursing RF tag can ne'er be as cost effective as a code label. However, RFID can still grow in its established niches wherever code or alternative optical technologies aren't effective [2][3]. If some standards commonality is achieved, whereby RFID instrumentation from totally different makers are often used interchangeably, the market can terribly probably grow exponentially[1]RFID System elements

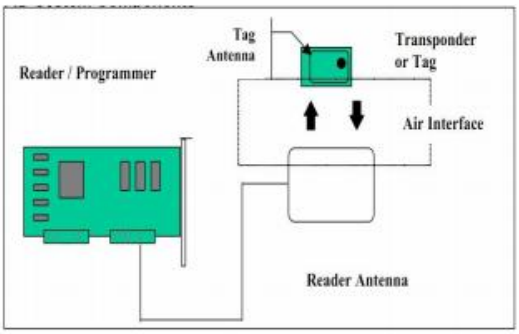


**Figure 1 RFID System Components**

## Transponders/Tags

## RFID Tag / Reader Schematic

The word electrical device, derived from TRANSMITTER / answerer, reveals thefunction of the device. The tag responds to a transmitted or communicated request for the information it carries, the mode of communication between the reader and also the tag being by wireless suggests that across the area or air interface between the 2. The term additionally suggests the essential parts that type associate RFID system – tags and a reader or querier. wherever querier is commonly used as an alternate thereto of reader, a distinction is someday drawn on the premise of a reader beside a decoder and interface forming the querier. the essential parts of a electrical device could also be described as shown below. typically speaking they're fictitious as low power integrated circuits appropriate for interfacing to external coils, or utilizing "coil-on-chip" technology, for information transfer and power generation (passive mode). Antenna: The electrical device antenna is that the suggests that by that the device senses the interrogating field and, wherever acceptable, the programming field and additionally is the suggests that of transmission the electrical device response to interrogation. variety of options, additionally to carrier frequency, characterize RFID transponders and type the premise of device specifications, including: suggests that by that a electrical device is battery- owered information carrying choices information browse rates Programming choices Physical type prices.


**Figure 2 RFID Reader/Tag Schematic**

**Figure 3 Inside RFID Reader**

## 2.1 WORKING OF RFID READER:

125 kHz/LF The RFID Proximity Reader Module contains a integral antenna in decreased type issue. it's designed to figure with customary carrier frequency of a hundred twenty five rate. This LF reader module with an inside or an external antenna facilitates communication with Read-Only transponders—type distinctive or TK5530 via the air interface. The tag information is distributed to the host systems via the wired communication interface with a protocol hand-picked from the module each RS232 and Wieg end Protocol. The LF module is best suited to applications in Access management, Time and group action, quality Management, hand-held Readers, Immobilizers, and different RFID enabled applications.

**Features:** Selectable UART or Wigand26 Plug-and-Play, wants +12V to become a browseer No repeat reads light-emitting diode indicates tag reading operation wonderful read performance while

not AN external circuit Compact size and cost-efficient. The RFID reader endlessly transmits a a hundred twenty five rate carrier signal victimisation its antenna. The passive RFID tag, embedded in AN id card as an example, powers on from the carrier signal [4][5]. Once supercharged on, the tag transmits, back to the reader, AN FSK encoded signal containing the info hold on on the cardboard. The FSK signal could be a a hundred twenty five rate carrier, with 12.5 rate because the mark frequency, and a 15.625 rate because the house frequency. The encoded signal is picked up by the reader's antenna, filtered, and processed on the embedded microcontroller to extract the tag's distinctive identity. At now the identity will be matched against the records hold on on the reader. The clock generator serves one purpose. It generates an occasional level a hundred twenty five rate sq. wave to be used by the sending circuit inside the antenna module. The antenna module takes a a hundred twenty five rate sq. wave input, buffers it, victimisation 3shunted inverting gates, and converts it into a a hundred twenty five rate curved wave victimisation the RLC circuit right away following the buffers. The ensuing wave is amplified, employing a push pull electronic equipment, forming the carrier signal, and fed into an antenna that transmits

## 3.PROPOSEDMETHODOLOGY.

The RFID Reader emits a low-power electromagnetic radiation field victimisation its antenna to power up the tag thus on pass the knowledge that's contained on the chip. This data on the chip is AN FSK encoded signal that is picked up by the reader antenna, filtered and processed on the embedded microcontroller to extract the tag's distinctive identity. The RFID card reader is connected to the controller through MAX232. The controller can receive TTL logic from a line driver, MAX232 since the RS232 isn't compatible with today's microcontrollers. The controller performs a information explore

for the communicating space range of the coed and displays it on the liquid crystal display screen connected to the controller. it's therefore attainable for a student to spot the actual communicating hall from the assorted hall when swiping RFID card in a very card reader. additionally, readers will be fitted with an extra interface that converts the radio waves came back from the tag into a pattern which will then be passed on to a different system, sort of a pc or any programmable logic controller for more process or storing of knowledge. RFID card readers area unit provided at the doorway of the building to modify entry. If any unauthorized person enters a buzzer alarm is about off.

### 2.1. Block diagram & Type of components

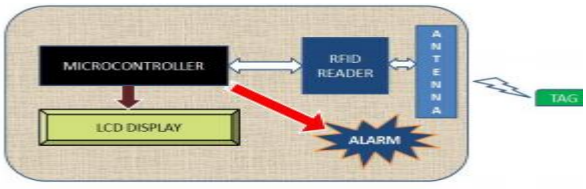


**Figure 4 Block Diagram of the proposed system**

The system constitutes the following modules:

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SBUF is associate degree 8-bit register used for serial communication. For a computer memory unit of information to be transferred via the TxD

line, it should be placed in SBUF register. Similarly, SBUF holds the computer memory unit of information once it's received by the 89S52's RxD line. the instant a computer memory unit is written into SBUF, it's framed with the beginning and stop bits and transferred serially via the TxD pin. Similarly, once the bits ar received serially via the RxD, the controller de-frames it by eliminating the beginning and stop bits, creating a emit of the info received and so inserting it within the SBUF. baud in AT89S52 [9] The 89S52 transfers and receives knowledge serially at many various baud rate rates. The baud within the controller is programmable. this is often finished the assistance of Timer1.The controller divides the crystal frequency bytwelve to urge the machine cycle frequency. within the case of XTAL =11.0592MHz, the machine cycle frequency is 921.6kHz (11.0592MHz/12= 921.6kHz). The serial communication UART divides the machine cycle frequency another time by thirty two all over again before it's utilized by Timer1 to line the baud. Therefore,921.6 kHz/32= twenty eight,800Hz. this is often the amount we are going to use to seek out the Timer1 price to line the baud. onceTimer1 is employed to line the baud it should be programmed in mode two i.e, 8-bit motor vehicle reload mode

## .3. RESULT & DISCUSSION

The developed unit and its responses at various stages are shown in figure 5,6,7 and 8 is as follows, where figure 6 shows the Initially without any Tag output on the LCD

Figure 5 Photo of Kit assemblies

Figure 6 Initially without any Tag output on the LCD

Initially we tend to store the tag id's within the microcontroller. once the scholar swipes the tag within the rfid reader; the corresponding id is fetched from the info of the microcontroller. If the scholar is associate degree Authorisied person the examination hall area range is displayed on the LCD. If the scholar is associate degree unauthorized person a buzzer alarm is made associate degreed additionally it displays the rationale why the scholar is an Un authorized person. Case1: The tag id shown is 10813759. The tag's corresponding id is checked from the info of the microcontroller. Here the scholar is Authorized person therefore the hall range is displayed on the LCD.


Figure 7 The Tag ID shown is 10813759

Case2: The other successful case is shown in figure 8

The Tag ID shown is 10813772


Figure 8 gives the Tag ID is 17128183

Case 3: If the coed is AN Unauthorized person a buzzer alarm is created and displays the rationale on the LCD whythe coed is an Un authorized. The tag id shown is 10813759. The

tag's corresponding id is checked from the information of the microcontroller. Here the coed is AN unauthorised person thus a buzz alarm is created

Figure 9 The Tag ID is 17128183

Output: Unauthorized
Pay Exam Fee

Figure 10: Output on the lcd

## CONCLUSION & FUTURE SCOPE

RFID technology is aborning technology which may be utilized in wide selection of applications. By group action each RFID and microcontroller generates a project with wider boundaries and effective solutions. Here an easy however effective system has been designed for the convenience of scholars mistreatment the spliced technology and a paradigm to prove the feasibleness and demonstrate the options has been developed. this concept will be improved upon by adding a lot of options like - maintaining student's details like fee due, library transactions, attending etc... the thought is useful to each the scholar and therefore the company society relying upon its effective implementation because it sow the seeds to develop numerous veritable comes..

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