# RFID BASED SCHOOL CHILDREN SECURITY SYSTEM

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**Abstract -** *A lot of children need to communicate between homes to school daily. In recent days safer transportation of school children has been a severe issue as it is often observed that, the child is forgotten to exit in the respective bus stop and if the child not entering the bus in a respective stop. This project intends to find yet another solution to solve these problems by developing a bus safety system that will control the entry and exit of students from the buses through an advanced methodology. The proposed system uses RFID (Radio Frequency Identification), GSM to send notification to parents regarding student and proximity sensor monitoring the speed of bus and alcoholic sensor is used to detect alcoholic consumption of the driver.*

***Key Words*: RFID,MICROCONTROLLER,GSM, PROXIMITY SENSOR,ALCOHOLIC SENSOR.**

## 1.INTRODUCTION

School buses transfer lot of children daily in various countries around the world. While there are many problems that might disturb the parents regarding the safety transportation of school going children, the paper is looking into introducing the bus controlling system that will help the school children in a secure and safer way. The supervision of the regularity of students during their entry and exit from the bus is difficult for the drivers,which led to endangering child safety. It has been increasing significantly in the recent years .This project, through entry and exit recordings, aims to create a suitable environment by following certain set of criteria of security and safety for school bus that will have a positive impact on the student and their family.

In this prototype ,GSM module ,RFID Tag which will exchange the data with the RFID reader via radio waves and displaying each student names and roll no into the LCD Display.

## 2.LITERATURE REVIEW

KHALEED SHABAN adopted RFID Technology to safe children from wrong identification their destination location, method to curtail the students sleeping in the bus itsself without leaving to classes. This paper also focused toprovide the security to the children from starting location to the destination point with applied RF technology. SEONG SHABAN described the security of the children at Zone premises. This paper adopted a wireless sensor network methodology to identify the vehicle license plate number

while moving with high speed. This paper also focused to trace the unauthorized parking vehicles at the school zone premises to safe guard the children from the accidents from the wrong and hidden zone areas. G. BHARATHI, L.RAMURTHY proposed that a mechanism which will trace the missed student by using GSM- GPS technology. An ARM 7 is used to process the given information and to send the appropriate location of the missed student by adopting the GSM technology. The Missed student Latitude and Altitude locations are determined by adopting the GPS Technology. V. SIVASANKARAN et.al proposed a RFID –GSM technology to provide the security to the school children. The RFID tags that are attached to the school children bags for tracking and GSM is used to send the messages to the respective parents. M. NAVYYA et.al Proposed GSM-GPS technology to track children students. GPS is used for identifying the student location. GSM is used to send the information to the parent android mobile. Monitoring database is provided at the control room of the school.

## 3. HARDWARE COMPONENTS

### 3.1 POWER SUPPLY

A power supply is an electronic device that supplies electric energy to an electrical load. The primary function of a power supply is to convert one form of electrical energy to another.

### 3.2 TRANSFORMER

Steps down high voltage AC mains to low voltage AC.

### 3.3 RECTIFIER

A rectifier is used to convert the transformer output voltage to a varying DC voltage. An electrical device which convert electrical device an alternating current into a direct one by allowing a current to flow through it in one direction only.

### 3.4 FILTERS

An electronic filter to convert it to an unregulated DC voltage. The filter removes most, but not all of the AC voltage variations; the remaining voltage variations are known as ripple. To eliminate unwanted noise.

### 3.5 REGULATOR

The function of a linear voltage regulator is to convert a varying DC voltage to constant .To maintain constant voltage.

### 3.6 GMS MODULE

SMS is an area in which, the modem can be used to provide features. These SMS can be transmitted on certain trigger events in an automations .SMS can also be used in areas where small text information has to be sent .The transmitter can be an automation system or machines like vending machines, collect machines

applications like positioning systems where the navigator keeps on sending SMS at particular time intervals.SMS can be a solution where GSM data call or GPRS services are not available.

### 3.7       RADIO-FREQUENCYIDENTIFICATION (RFID)
uses electromagnetic fields to auto identify and track tags attached to objects. The tags contain electronically stored information. Passive tags collect energy from a nearby RFID reader's interrogating radio waves. Active tags have a local power source such as a battery and may operate at hundreds of meters from the RFID reader. Unlike a barcode, the tag need not be within the line of sight of the reader.

### 3.8 RTC [DS-1307]

A real time clock is basically just like a watch - it runs on a battery and keeps time for you even when there is a power outage! Using an RTC, you can keep track of long timelines, even if you reprogram your microcontroller IR Receiver

### 3.9 INTERFACING LCD TO THE MICROCONTROLLER

This is the first interfacing example for the parallel port. We will star with something simple. This example does not use

the Bi-directional feature found on newer ports, thus it should work with most, if no all Parallel Ports. It however does not show the use of the status port as an input. So what are we interfacing? A 16 Character, 2 Line LCD Module to the Parallel Port. These LCD Modules are very common these days, and are quite simple to work with, as all the logic required running them is on board.

### 3.10 PIC MICROCONTROLLER

Microcontrollers give you a fantastic way of creating projects. A PIC microcontroller is a processor with built in memory and RAM and you can use it to control your projects (or build projects around it).  So it saves you building a circuit that has separate external RAM, ROM and peripheral chips .What this really means for you is that you have a very powerful device that has many useful built in modules

- High –performance RISC CPU.
- Only 35 Signal word instructions to learn.
- Two timers.
- One 10bit ADC with 4 selectable inputs.
- An internal oscillator (or you can use an external crystal).
- An analogue comparator.
- 1024 words of program memory.
- 64 Bytes of RAM.

- 128 Bytes of EEPROM memory.
- External interrupt (as well as interrupts from internal peripherals).
- External crystal can go up to 4MHz.
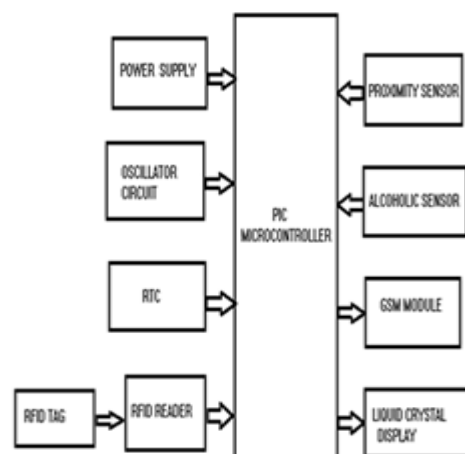- ICSP: PIC standard programming interface.



**Fig -1**: Block Diagram

### 3.11 PROXIMITY SENSOR

A proximity sensor is a sensor able to detect the presence of nearby objects without any physical contact. Proximity sensors are commonly used on smartphones to detect accidental touchscreen taps when held to the ear during a call .A proximity sensor often emits an electromagnetic field or a beam of electromagnetic radio, and looks for changes in the field or return signal. The object being sensed is often referred to as the proximity sensor's target.

### 3.12 ALCOHOLIC SENSOR

This alcohol sensor is suitable for detecting alcohol concentration on your breath, just like your common breathalyzer. It has a high sensitivity and fast response time. Sensor provides an analog resistive output based on alcohol concentration. The drive circuit is very simple, all it needs is one resistor. A simple interface could be a 0-3.3V ADC. Alcohol Sensor is a complete alcohol sensor module for ARDUINO or microcontroller. It is built with MQ303A semiconductor alcohol sensor. It has good sensitivity and fast response to alcohol. It is suitable for making Breathalyzer. This Grove implements all the necessary circuitry for MQ303A like power conditioning and heater power supply. This sensor outputs a voltage inversely proportional to the alcohol concentration in air.

## 4. SOFTWARE COMPENENTS

### 4.1 MPLAB Software

MPLAB is a proprietary freeware integrated development environment for the development of embedded application on PIC and is developed by microchip technology.

### 4.2 EMBEDDED C

Embedded C is a set of extension of C language. It is more efficient.

## 5. CONCLUSIONS

This security system endeavours the safety transportation for the school children in a daily life .This system uses RFID for detecting the child is enter or leaves the bus along with the stopping place of the children .The message will passed simultaneously to the parents and school.so that we can overcome the child kidnapping cases. By using proximity sensor to avoid accidental cases.

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