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Smart Tracking System to Locate Student and Vehicle in Schools

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Abstract: In current scenario due to increase in kidnapping of kids and road accidents, Parents feel much worried about the safety of their children. They always seek a solution to track the presence of their kid once they depart from home to school. Thus, we propose a SMS based solution to help parents to know their children arrival and time of departure during their school days. Accident detection sensors are implanted on the front surface of the school bus to detect collision with another vehicle on the road. Each student is tagged with a unique code. The code will be recognized by the RFID system. If the bus journey is not harmful from the source to destination, the GSM will send an SMS to the management and parents to inform its departure and arrival status of the

Keywords: Bus Safety System, RFID (Radio Frequency Identification), GSM modem, GPS

I. INTRODUCTION

School children safety is the most awaited research needed for present age with the support of advanced technology. We have developed working model with RFID Technology and a PIC 16F877A microcontroller and GSM technology. The Entry and Exit status of the children is primarily fed and made available with school principal and with the parents. The proposed article describes a bus safety system to control the entry and exit of students from the bus. These systems identify personal information of each student using RFID tag, via radio waves and display each student name into LCD display. The IR sensor is used to monitor the total count of the students. This will help the driver to know count of students inside the bus and the students who departed from the bus. If the bus depart and arrive successful from the source to destination, it will communicate the management through an SMS about successful departure and arrival via GSM Modem. Moreover, the system has an emergency setup to alert in case if there is any accident by sending an SMS to the school management via GPS System.

II. LITERATURE REVIEW

Maryam Said Al-Ismaili [2] proposed a system capable to control the entry and exit of students in bus using RFID tag and GSM technologies to ensure the entry and exit in based on attendance in safer manner. K. Vidyasagar [5] et al have designed the working model with RFID Technology and an advanced ARM 7 processor and GSM technology. The status of the children is pre-written and readily available with the school principal and with the parents. Wireless technology (IEEE 802.4.15) is used to inform the status of the bus to the school.

A. Abdullah [1] et al, implemented an Android based solution to support and help parents to track their children in real time environment. The system is equipped with location sharing capabilities helping to get the device's geographic position in real time. Mahesh Kadibagil[3] developed an Autonomous target detection and tracking system that enhances the accuracy of locating a particular person position by using GPS information and standard web technology. This system includes a mobile client, a database repository, a web client and a map service. In the tracking system designed by Khaled[4], he utilized the passive RFID tracking technology since it has efficient tracking capabilities, low cost, and easy maintenance. It works to provide secure transportation in school bus equipped with RFID technology.

III. HARDWARE COMPONENT DESCRIPTION

The following are the major components which are used in the GSM based school bus transportation system using RFID

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