

An Intelligent Electronic BOX for Exam Paper Spillage Identification system

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Abstract— Instruction is essentially the spirit of a general public and examination is the heart of training framework. Today, when we run over the news of negligence in exams, we understand that, intentionally or unwittingly this spirit has hopelessly defiled. The principle purpose behind this is exam paper spillage. The genuine moves must be made to keep this. So we propose an electronic framework here to distinguish and avoid examination paper spillages. In this proposed framework the question papers will be sent to the examination focuses in the electronically bolted box, which can't be opened before the predefined date and time. The case can be opened by credible client as it were. The question papers are really present in sub boxes. These are secret word ensured. The exam controller will communicate something specific containing secret word to open individual sub box. At the point when the Secret word, date and timing match, the case will open through a mechanized system. This will help the papers to remain bolted and fixed till the time of examination. The light sensors are utilized to recognize any kind of unapproved altering.

Index Terms— ARM7, GSM, RFID, RTC, L293D Motor Driver, Electronic BOX

I. INTRODUCTION

IN examination is an evaluation planned to quantify the learning, abilities, inclination, and physical wellness or order in numerous different themes. A test might be controlled orally, on paper, on a PC or in a kept territory that requires an examinee to physically play out an arrangement of aptitudes. The history of examination is wide.

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The initial an across the country state sanctioned test was executed in China, Which was known as the supreme examination? The principle reason for this examination was to choose capable contender for various legislative positions. The supreme examination was built up in 605 Advertisement. And after that after various nations embraced the examination frameworks. Britain had received this examination framework in 1806 to choose the candidates for positions in Common Administrations. This examination framework was later connected to training and turned into an overall standard. Every year news flashes in daily paper and TV amid the season of examination that the exam is being put off/scratched off because of the spillage of question papers.

Ordinarily the spillage of question papers won't be known to the colleges. In such conditions a few understudies get great positions by these spilled papers and those understudies who had buckled down need to trade off with less rank. This component will have negative impact on the development of the general public. In this way by considering the issues confronted by the understudies and society a framework must be actualized which will distinguish and keep the spillage of question papers

II. LITERATURE REVIEW

Survey the question papers are dispersed in fixed boxes. This framework is being taken after since numerous years. The burdens of this framework are it might prompt spillage of question papers at different cases in the voyage of box from printing area to examination focuses. This occurs because of simple altering of fixed boxes and more human impedance. Other strategy includes the e-duplicate of the question papers sent from the college to the universities earlier to examination. The schools take the printouts of the question paper and afterward are disseminated to the examinees. This strategy likewise has many

impediments.

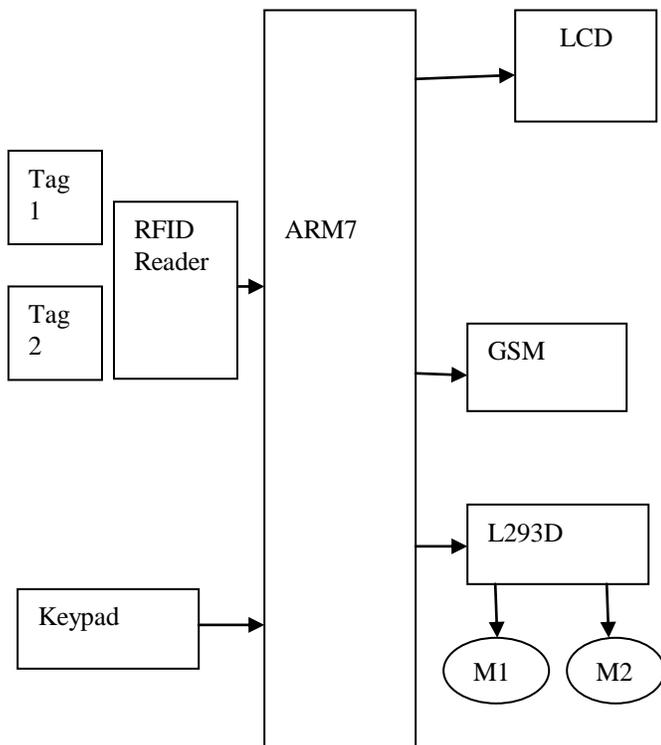
The site might be hacked, server may likewise breakdown and number of schools needed to take printouts which includes the dangers like power disappointment, framework disappointment and may prompt spillage or issues in conduction of examination. The thought for the proposed framework which includes the electronic insurance is gotten from advanced applications like Electronic lockers in bank, Home security frameworks, office security frameworks and other security upgraded electronic frameworks.

2.1 PROPOSED SYSTEM

A Principle enclose contains the sub boxes which address papers are proposed to be kept. The RFID tag and GSM modem are associated with the container alongside the ARM processor. GSM modem interfaced to ARM processor dependably sends the report of exercises to college by means of instant messages. The diagram of proposed framework is appeared in figure.

III. BLOCK DIAGRAM

Electronic Box:



Receiver:

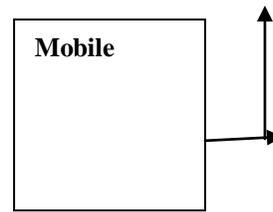


Figure 1: Hardware of Electronic paper Leakage Protection

The idea behind this project is to protect the leakage of question papers before the examination and also to maintain the security of the papers until they reach the centre for examination. An electronic box is made in which the exam papers will be placed, and can be opened only at the exact time of examination after the cross checking of the password. Updates are displayed in the box regarding the time left for the exam to finish. If anyone tries to open the box before the stipulated time, it cannot be opened. Thus, the project works towards the protection of the examination papers and provides a fair competition through the exam.

3.1 LPC 2148-MICROCONTROLLER

LPC2148 is the generally utilized IC from ARM-7 family. It is fabricated by Philips and it is pre-stacked with numerous inbuilt peripherals making it more proficient and a solid alternative for the tenderfoots and also top of the line application engineer.



Figure 2: LPC 2148 Board

Features:

- 8 to 40 kB of on-chip static RAM and 32 to 512 kB of on-chip flash program memory. 128 bit wide interface/accelerator enables high speed 60 MHz operation.
- In-System/In-Application Programming (ISP/IAP) via on-chip boot-loader software. Single flash sector or full chip erase in 400 ms and programming of 256 bytes in 1ms.
- Embedded ICE RT and Embedded Trace interfaces offer real-time debugging with the on-chip Real Monitor software and high speed tracing of instruction execution.
- USB 2.0 Full Speed compliant Device Controller with 2 kB of endpoint RAM. In addition, the LPC2146/8 provides 8 kB of on-chip RAM accessible to USB by DMA.
- One or two (LPC2141/2 vs. LPC2144/6/8) 10-bit A/D converters provide a total of 6/14 analog inputs, with conversion times as low as 2.44 us per channel.
- Single 10-bit D/A converter provide variable analog output.
- Two 32-bit timers/external event counters (with four capture and four compare channels each), PWM unit (six outputs) and watchdog.

3.2 GSM MODULE

Inductive proximity sensors are used for non-contact detection of metallic objects. Their operating principle is based on a coil and oscillator that creates an electromagnetic field in the close surroundings of the sensing surface. ... Sensitivity when different metals are present.

GSM/GPRS module is used to establish communication between a computer and a GSM-GPRS system. Global System for Mobile communication (GSM) is an architecture used for mobile communication in most of the countries. Global Packet Radio Service (GPRS) is an extension of GSM that enables higher data transmission rate.

GSM/GPRS module consists of a GSM/GPRS modem assembled together with power supply circuit and communication interfaces (like RS-232, USB, etc) for computer. GSM/GPRS MODEM is a class of wireless MODEM devices that are designed for communication of a computer with the GSM and GPRS network.

It requires a SIM (Subscriber Identity Module) card just like mobile phones to activate communication

with the network. Also they have IMEI (International Mobile Equipment Identity) number similar to mobile phones for their identification. A GSM/GPRS MODEM can perform the following operations:

1. Receive, send or delete SMS messages in a SIM.
2. Read, add, search phonebook entries of the SIM.
3. Make, Receive, or reject a voice call.

The MODEM needs AT commands, for interacting with processor or controller, which are communicated through serial communication.

These commands are sent by the controller/processor. The MODEM sends back a result after it receives a command. Different AT commands supported by the MODEM can be sent by the processor/controller/computer to interact with the GSM and GPRS cellular network.



Figure 3: GSM Module

Specifications:

- SIM800 Quad Band GSM Module
- Voltage Supply Required- 9VDC to 12VDC with at least 2A Peak Current Capability
- TTL Rx and TTL Tx and DB9 Connector Based RS232 Outputs
- External Finger type antenna
- Switching Regulator Based Power Supply

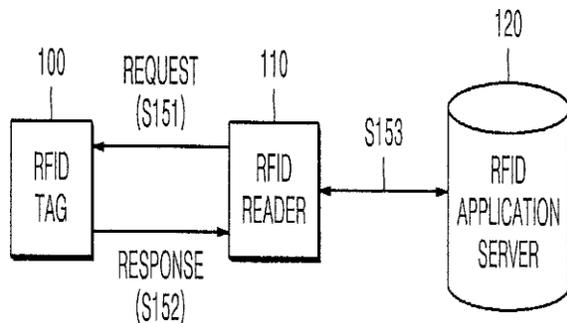
Features:

- Bands: GSM 850MHz, EGSM 900MHz, DCS 1800MHz, PCS 1900MHz
- Coding schemes: CS-1, CS-2, CS-3, CS-4 Tx power: Class 4 (2W), Class 1 (1W)
- Small package: 23 * 23 * 3mm
- Low power: down to 1mA in sleep mode
- TCP/IP AT firmware
- Operating temperature: -40C to +85C

- Audio channels which include a microphone input and a receiver output.
- One SIM card interface.

3.3 RFID and Working Principle

RFID Reader Module, are also called as interrogators. They convert radio waves returned from the RFID tag into a form that can be passed on to Controllers, which can make use of it. RFID tags and readers have to be tuned to the same frequency in order to communicate. RFID systems use many different frequencies, but the most common and widely used & supported by our Reader is 125 KHz.



An RFID system consists of two separate components: a tag and a reader. Tags are analogous to barcode labels, and come in different shapes and sizes. The tag contains an antenna connected to a small microchip containing up to two kilobytes of data. The reader, or scanner, functions similarly to a barcode scanner; however, while a barcode scanner uses a laser beam to scan the barcode, an RFID scanner uses electromagnetic waves. To transmit these waves, the scanner uses an antenna that transmits a signal, communicating with the tags antenna. The tags antenna receives data from the scanner and transmits its particular chip information to the scanner.

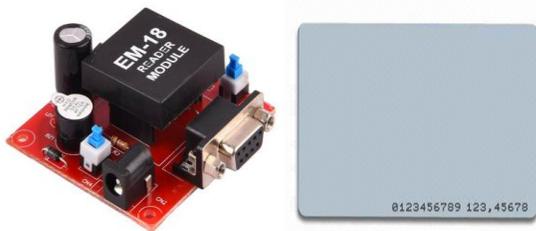


Figure 4: RFID Tag, Module

Real-time clock:

A real-time clock (RTC) is a computer clock (most often in the form of an integrated circuit) that keeps track of the current time. Although the term often refers to the devices in personal computers, servers and embedded systems, RTCs are present in almost any electronic device which needs to keep accurate time.



Figure 5: RTC Module

3.4 Voice playback:

The APR9600 provided all the necessary features for recording and playing the audio with very fewer external components at a very low cost. May be many of you are aware that the APR9600 audio recorder and playback IC is no longer manufactured!. The chip was manufactured by a Taiwan based company called APLUS Integrated Circuits Inc.



Figure 6: Voice Playback

Features:

- Operating Voltage Range: 3V ~ 6.5V.
- Single Chip, High Quality Audio/Voice Recording & Playback Solution.
- No External ICs Required, minimum External Components.
- User Friendly, Easy to Use Operation.
- 680 sec. ...
- Powerful 16-Bits Digital Audio Processor.
- Nonvolatile Flash Memory Technology.



Figure 7: Hardware Design

IV. WORKING RESULTS



Fig 11 : Time setting



Fig 8: Send Mobile number to store



Fig 12 : Examination Time setting



Fig 9: Mobile number Received to store



Fig 13 : Unauthorized card shown on Examination Time



Fig 10: current time displaying



Fig 14 : Authorized card shown on Examination Time



Fig 15: Enter OTP for Box Open



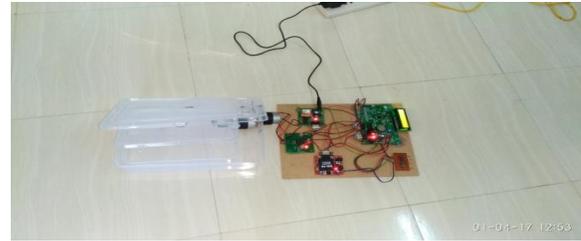
Fig 16: Enter OTP for Box Open



Fig 17: OTP OK for Box Open



Fig 18: OTP OK, Box Opened



V. CONCLUSION

A financially savvy framework is proposed here which utilizes RFID, GSM and Constant Synchronized clock. Examination area of college can convey the question papers to the examination focuses by secret word ensured electronic security framework. All these question papers will have next level security utilizing RFID. Utilizing GSM every action including opening and shutting the crate can be checked progressively by college examination focus.

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