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Electronic Protection for Exam Paper Leakage Using Arduino Uno

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Abstract- *The project describes electronic protection for exam paper leakage which is a high-security system. The examination is the important aspect for the educational system to test the skills of student through online, orally on papers. Question paper comes to the college from university in electronic sealed box which is an embedded system designed with ARM processor. An RFID card will be given to the college authorities and password will send to college before 10minutes of exam. By swiping the RFID card with appropriate password, lock of electronic sealed box is open. If anyone tries to open the electronic sealed box before and after RFID swipe duration message will be send to university board through GSM which indicates exam paper is leaked. In existing system, there is a controller along with RFID module which requires RFID tags to access which is disadvantage, as the card can be used by any one and there is no tracking of person who is actually accessing it. In the proposed system we are overcoming disadvantage with biometric scanner. GPS module to access a system and to keep a track for the person accessing.*

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I. INTRODUCTION

Education is basically the motivating force of the society. An examination is the assessment planned to measure the skill, knowledge, physical fitness or aptitude and also classification in so many subjects. An exam may be on paper, on the computer, orally, in exam centers, which are conducted to test, calculate or examine the set of skills. Also the main purpose of the examination is to select the capable candidates for different positions. For the students main issues are question paper leakage, who suffer from the postponed or cancellation of the examination. Each and every year we hear news about postponed/cancelled exam due to paper leakages in the newspaper or on television. Sometimes the university itself doesn't know how there is leakage of any information content related to question papers. Hence, some student gets good rank in minimum time and with less effort and those students who really deserve the rank will not score even after hard work and maximum efforts. This aspect will create negative effect on students and demoralize the growth of society. So we have come up with a compact and portable solution and decided to design and implement an examination paper leakage protection system based on Arduino Uno. Along with the GPS, GSM modem, Finger print module, keypad, LCD, IR Sensor and electromagnetic lock are used in this system. First the question paper comes to the college from university in an electronic sealed box which is called Electronic Control Box. The Electronic Control Box is an embedded system that was designed using Arduino Uno, which has inbuilt RTC to monitor the Electronic Control Box. If anyone tries to open the box before exam time, the system communicates to the university authorities by sending an SMS (Short Message Service) and exam paper leakage location through GSM (Global System for Mobile communication) and GPS (Gobal positioning system) that "some malfunctioning has taken place with the Electronic Control Box".If the authorized person is absent by clicking the # button the unique OTP. The OTP will tell to the college authority of the college before 10 minutes of the exam. The chief authority will enter on the keypad the box will automatically opened.

II. PROPOSED SYSTEM

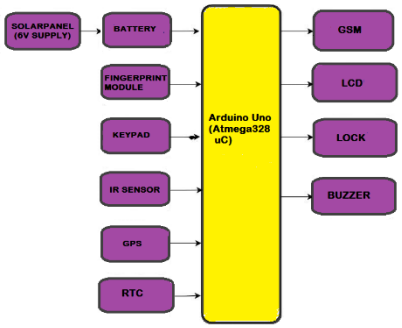
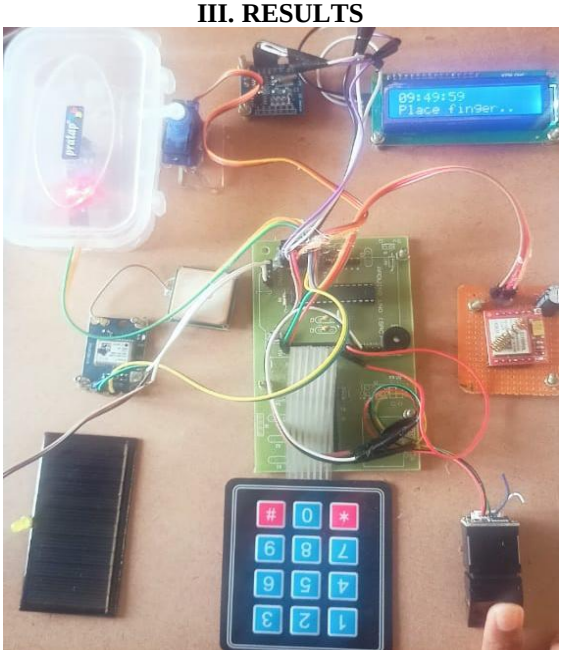


Fig.1. Block diagram

Shows the block diagram of "Electronic protection for exam paper leakage". The system consists of Arduino Uno, LCD Display, GPS, GSM, IR Sensor, Solar panel,RTC, Buzzer, Keypad, Lock, Finger print module. The Arduino Uno microcontroller, which acts as a brain of the system. This microcontroller controls the circuit function. Various components are interfaced with this microcontroller. The power supply from solar pannel. This power is provided by the rechargeable battery connected in the system. In this system we have interfaced IR sensor with the microcontroller to detect the person who is accessing the electronic box. A GPS is also interfaced with the microcontroller to determine the exact location of exam paper leakage.Then through by using GSM microcontroller will send the messages, if the authorite is absent by cliking # the OTP will send to the authority and also if the unauthorized person forcefully open the unauthorized accessing message will send to university. The RTC (Real Time Clock) is used to know the time of exam paper leakage, and also uses fingerprint module to access the fingerprints of the authorized person. The architecture of the proposed system also consists of a 16x2 LCD display, interfaced with the microcontroller for the display papasan buzzer is used to generate the beep sound if the unauthorized is forcefully open. Keypad is used to enter the OTPs from the authorized person.

III. RESULTS



Fih.2. Final output of the project

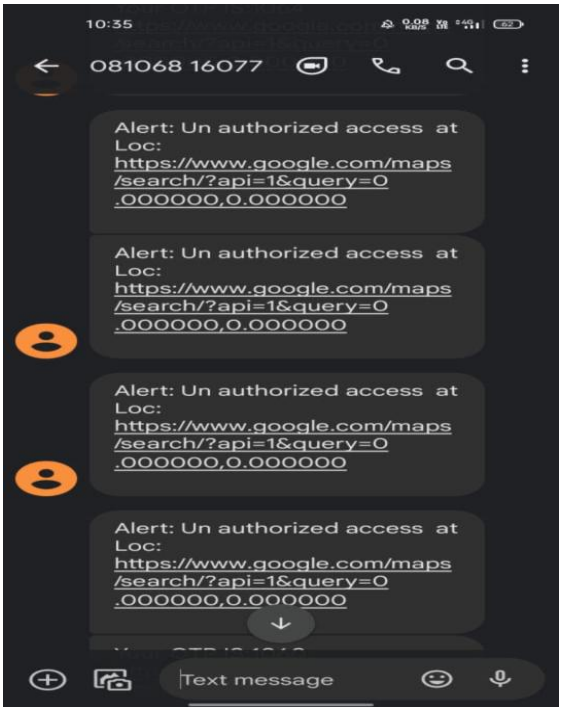


Fig.3. Message to the board after unauthorized person accesing the box and forcefully opening the box

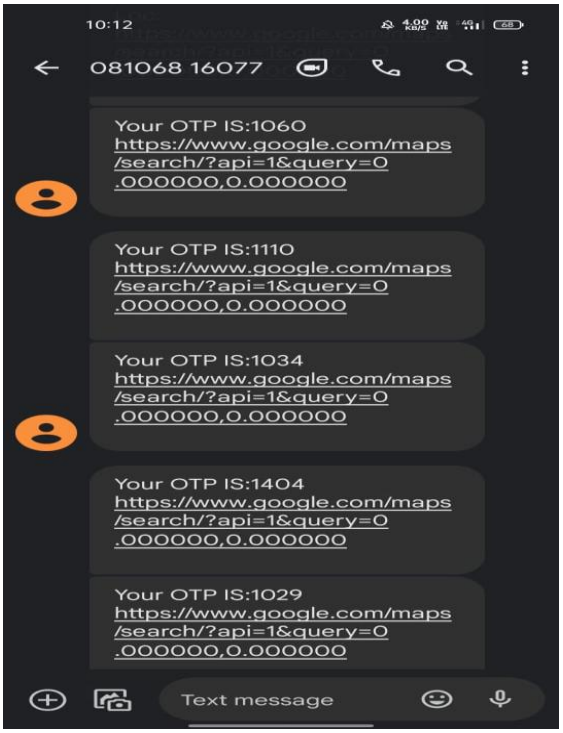


Fig.4. OTP to the authorised person if the authorised person is absent the college faculty by clicking the # button the message will send to the authorised person by entering the OTP box will open

IV. FUTURE SCOPE

A cost effective system is proposed here which uses GPS, GSM and Keypad security. This security can be enhanced with bio metric system and can be used for different applications which are confidential related to our country. The GSM used here can be extended to send SMS to different people once there is alert. The password when given in this project can be made as OTP by using different programming structures. With these additional features this can project can be made as an advance system and can help us in many ways

V. CONCLUSION

The compact and cost effective solution for the examination paper leakage system was achieved with ARM processor controller. This project can be extended to protect the answer sheets to send it to the university authorities. It can also be used in various other applications where protection of documents or any valuables is needed. The embedded system can be programmed to close the Electronic Control Box after the completion of the exam. This paper is implemented to detect and prevent the leakage of question papers in various university and civil service exams. It can be modified to protect some secret and confidential information papers related to our country .In this project we use simply IR open the locker. This includes cost effective system which uses GSM and GPS. Hence, this system also protected from danger that if someone tries to open the locker from backside. So we can restrict some area around the locker with the help of IR sensor. So that if person entered in restricted premises then the buzzer gets activated.

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