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RFID Based Exam Paper Leak Detection and Alert Over IOT

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ABSTRACT

The idea behind this project is to protect the leakage of question papers before the examination and also to maintain the security of the answer paper until they reach the center for evaluation. The examination may be the heart of the education framework. The principal reason for the examination will be to select the proficient applicants for several positions. Every year we get the news regarding postponed/canceled exam because of paper leakages. So we need come up with manageable and compact result and decided to design and execute an "examination paper leakage security "that will be a much-protected system using controller.

Together with "At-Mega 328 controller, Face detection, Relay and Motor, and RFID module "would be utilized in this system which we implemented. If anyone tries to open the box before the stipulated time, then a beep sound will come from the buzzer, which is connected to the electronic box. RFID is connected to the electronic control box, which acts as a first level of authentication. Face detection and recognition is used as second level of authentication for providing more protection. Thus, the project works towards the protection of the examination papers and provides a fair competition through the exam.

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 examination 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.

First the question paper comes to the college from University in an electronic sealed box which is called Electronic Control Box. By using two level of authentication, one is RFID and another is face detection and recognition more protection is providing for the exam papers, which will avoid the leakage of exam papers before the exam. Only authorized persons

can access this Electronic Control Box after the completion of two level of authentication.

Internet of Things (IoT) is a combination of digital-machines, computing devices, mechanical machines, objects with UID's and ability to transmit the information over a network without interference of human to human or human to computer interaction [1-2]. There are many other contribution factors which paved the way for this rapid development say embedded systems, control systems, building automation, home automation and wireless sensor networks [3]. There are various layers in IoT. They are Sensing Layer, Network Layer, Data processing layer, Application layer. Radio frequency (RF) refers to the oscillation rate of electromagnetic radio waves between 3 GHz and 300 GHz and alternating radio signalling currents, the frequency band used for communication and broadcasting. It is a process of transmitting a data or power between multiple points that are connected by an electrical device.

II. BLOCK DIAGRAM

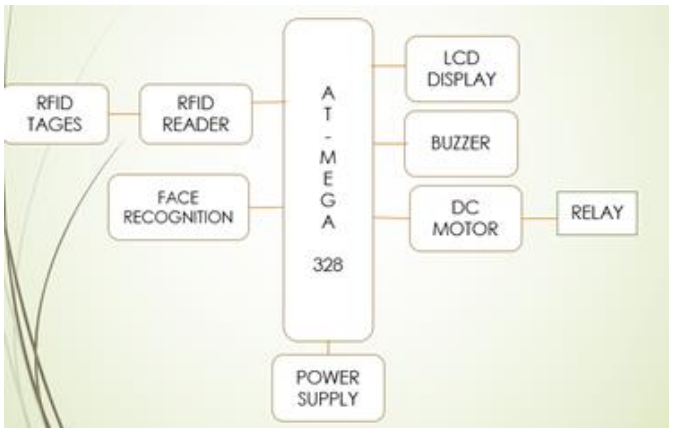
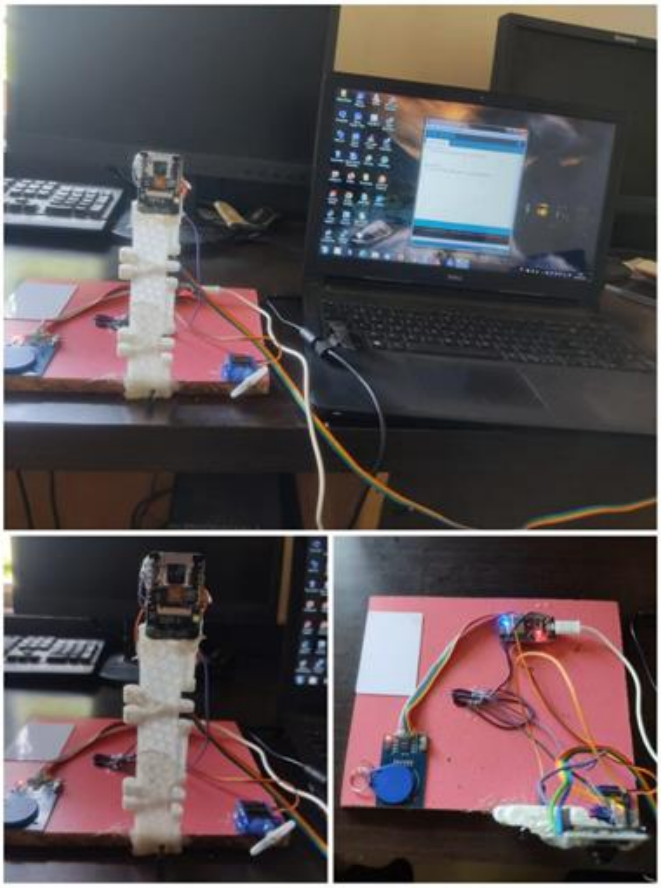


Fig. Block Diagram of RFID Based Exam Paper leak Detection

Actual image



At-mega 328

Arduino was born at the Ivrea Interaction Design Institute as an easy tool for fast prototyping, aimed at students without a background in electronics and programming. As soon as it reached a wider community, the Arduino board started changing to adapt to new needs and challenges, differentiating its offer from simple 8-bit boards to products for IoT applications, wearable, 3D printing, and embedded environments.

RFID Tags

An RFID tag consists of an integrated circuit and an antenna. This tag carries 12 unique numbers. The tag is also composed of a protective material that holds the pieces together and shields them from various environmental conditions. The protective material depends on the application. For example, employee ID badges containing RFID tags are typically made from durable plastic, and the tag is embedded between the layers of plastic. RFID tags come in a variety of shapes and sizes. Tags can be attached to almost anything like Animals, Employee ID Card, vehicles, assets, Shoes, etc. There are two types of RFID tags.

RFID Readers

It is used to read unique IDs from RFID tags. Whenever RFID tags come in range, the RFID reader reads its unique ID and transmits it serially to the microcontroller or PC. The RFID reader has a transceiver and an antenna mounted on it. It is mostly fixed in a stationary position.

DC MOTOR

A DC motor is any of a class of electrical machines that converts direct current electrical power into mechanical power. The most common types rely on the forces produced by magnetic fields. Nearly all types of DC motors have some internal mechanism, either electromechanical or electronic; to periodically change the direction of current flow in part of the motor. Most types produce rotary motion; a linear motor directly produces force and motion in a straight line.DC motors were the first type widely used, since they could be powered from existing direct-current lighting power distribution systems. A DC motor's speed can be controlled over a wide range, using either a variable supply voltage or by changing the strength of current in its field windings. Small DC motors are used in tools, toys, and appliances.

Advantages

1. The exam paper leakage system were effectively carried out with the advantages of minimum peripheral interfaces .
2. Low power consumption .
3. Low cost .
4. High portability.

Disadvantages

1. The server breakdown may occur ,website may be hacked & more than hundred colleges should take printout which involves the threats like power failure, system failure & leakage of the paper .

Application

1. This project can be extended to protect the answer sheets to send it to the university authorities.
2. It can also be used in various other applications where protection of documents or any valuables is needed.
3. Used in banks for security purposes.

III. CONCLUSION

The Design and its implementation of ARM processor-base electronics protection for the exam paper leakage system were effectively carried out with the advantages of minimum peripheral interfaces, low power consumption, low cost, high portability. The response of the system is successfully tested in all the conditions of the system that is mentioned in the system functionality. The compact and cost-effective solution for the examination paper leakage system was achieved with the 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.

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