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PROJECT REPORT

Project Name:

DOOR SECURITY ENHANCED WITH RFID MODULE AND TEMPERATURE SENSOR /:

Members: ME (Section B)

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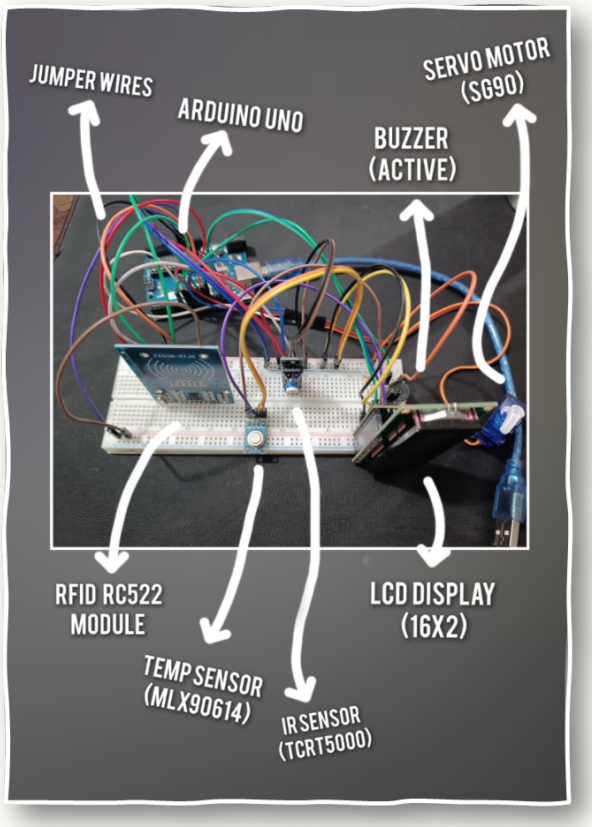
OBJECTIVE:

To design and implement a secure and efficient system for locking and unlocking doors using RFID technology, providing convenience, reliability, and accessibility for authorized users, while maintaining the safety and privacy of the premises.



METHODOLOGY:

1.Install the RC522 RFID reader and MLX90614 temperature sensor onto the door lock system.
2.Program the system to store multiple slave tags in the master tag for multiple user access.
3.Configure the system to read the temperature using the MLX90614 sensor and prevent the door from opening if the temperature readings exceed a certain threshold.
4.Check for a valid RFID tag and compare it with the stored tags in the master tag.
5.If a match is found, the door will unlock. If not, the door remains locked.
6.Repeat this process for every door access attempt to ensure secure and reliable access control.

COMPONENTS AND PRICES:

The following list of components will be required for this project:

1.Arduino UNO R3 ----------> 1100 tk
2.RFID RC522 Module (1 unit) ----------> 188 tk
3.MLX90614 Sensor (1 unit) ----------> 1400 tk
4.LCD Display with I2C module (1 unit) ----------> 350 tk
5.Active Buzzer (1 unit) ----------> 15 tk
6.TCRT5000 IR Sensor (1 unit) ----------> 100 tk
7.SG90 Servo Motor (1 unit) ----------> 150 tk
8.1.5V Batteries (4 units) ----------> 80 tk
9.Jumper wires (2 sets) ----------> 250 tk

Total Cost: 3540 tk

ADVANTAGES:

•**Increased security:** RFID provides secure access control by assigning unique identification to authorized users and allowing only those users to unlock the door.
•**Convenience:** The use of RFID makes it easier for users to access the door without having to manually enter a password or carry a physical key.
•**Integration with temperature sensor:** By combining the MLX90614 temperature sensor with the RFID system, you can implement additional safety measures, such as denying access to individuals with elevated temperatures (e.g., due to illness).

DRAWBACKS:

•**Cost:** Implementing such a system can be more expensive compared to traditional locking systems.
•**Technical expertise:** Setting up and maintaining the system may require technical expertise.
•**Dependence on technology:** The system relies on technology, which means it could potentially malfunction or be disrupted.
•**Privacy concerns:** The use of RFID and temperature sensors raises privacy concerns as it involves the collection and storage of personal data.

CURRENT APPLICATIONS:

- **Healthcare**
- **Food and Beverage**
- **Logistics**
- **Agriculture**

It is utilized to monitor and track temperature-sensitive items, ensuring their quality and maintaining optimal conditions. By combining the power of RFID and temperature sensing, these industries can improve their processes and achieve better outcomes.

CONCLUSION:

The RFID RC522 module integrated with MLX90614 temperature sensor offers improved security and convenience for locking and unlocking doors. With real-time temperature monitoring and RFID access control, this system offers benefits for temperature-sensitive environments. However, it also comes with a higher cost, limited range, and the potential for malfunctions. Despite these challenges, the integration of RFID technology and temperature sensing remains a promising solution for industries needing to monitor and secure temperature-sensitive items.