UNIVERSITY OF BAHRAIN
COLLEGE OF INFORMATION TECHNOLOGY
DEPARTMENT OF COMPUTER ENGINEERING

PROJECT TITLE

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ABSTRACT

IoT-based cloud smart lock, that seamlessly combines security and convenience with the integration of Amazon Web Services (AWS). The system leverages the power of AWS such as including AWS IoT Core, DynamoDB, and Lambda to provide a secure and scalable cloud platform for managing IoT devices. This smart lock system achieves a robust and secure access control solution, it was made using an ESP32 module for the lock operations and a fingerprint sensor, keypad, and RFID for unlocking the lock. In addition, a dedicated webpage facilitates admin permissions and management. The project combines the convenience of cloud connectivity and centralized management with the reliability and scalability provided by AWS which ensures a seamless and efficient user experience while maintaining the highest standards of security.

OBJECTIVES

The main objective of the project is to create an IoT-based cloud smart lock system that seamlessly integrates security and convenience using Amazon Web Services (AWS). To accomplish that goal, the following objectives have been established to steer the project's progress:

1- Develop an IoT smart lock system that Integrates with AWS

2- Develop a scalable and dependable cloud platform for the smart lock.

3- Use a variety of authentication techniques.

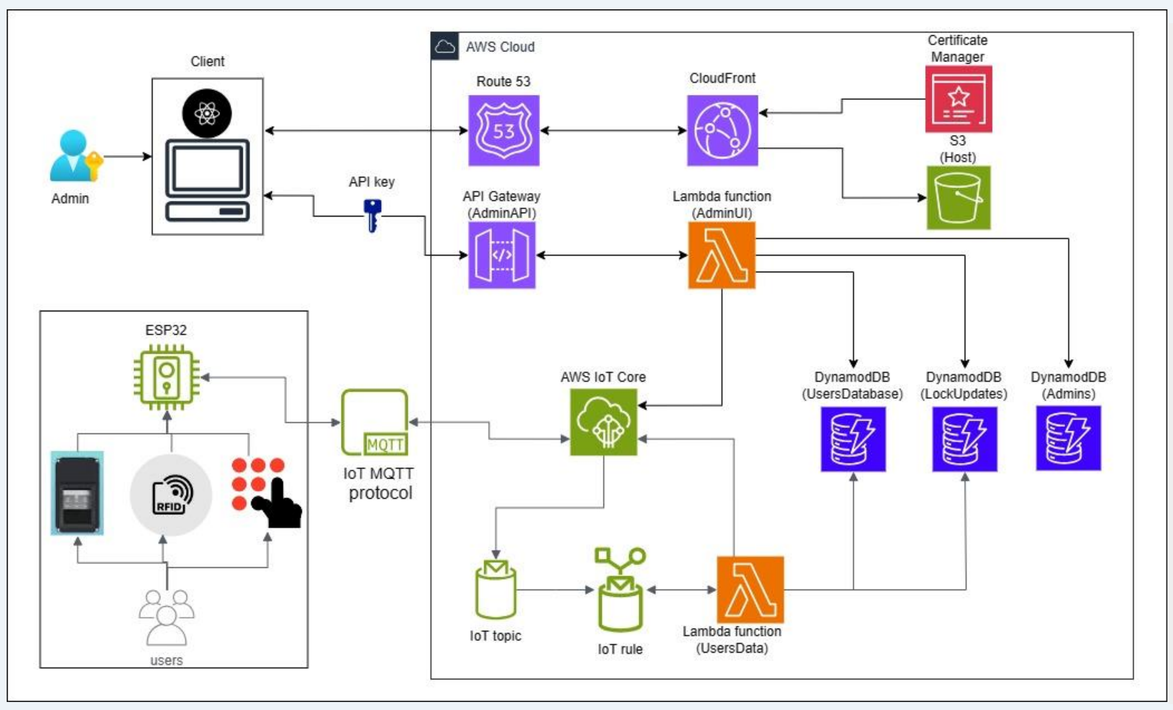
4- Create a user-friendly web-based admin interface for convenient and centralized management of the smart lock system.

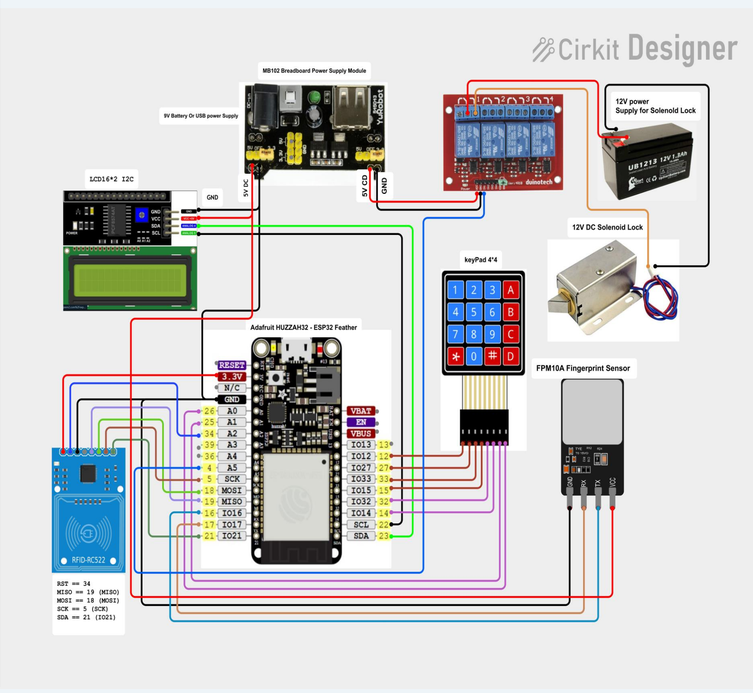
5- Ensure the highest levels of security

6- Conduct testing and evaluation of the system's performance, reliability, and security.

7- Look into the possibility of future enhancements and developments.

METHODS/DIAGRAMS/FIGURES





RESULTS

A seamless and secure IoT smart lock integrated into AWS. It provides comprehensive access management giving the admin full control using a dedicated interface. The system has high availability, scalability, security, and fast responsiveness, ensuring a smooth user experience.

CONCLUSION & FUTURE WORK

Successfully achieved the objectives and developed and tested the smart lock.

- Future work:
- Enhanced Privacy Measures.
- Advanced Authentication Methods.
- Add AI Features.
- Improve Usability and User Experience.
- Develop Sleep mode for the system.