DETI Access Control System

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Projeto de Engenharia de Computadores e Informática

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DETI Access Control System

The objective of this project is to create a secure system for deti doors.

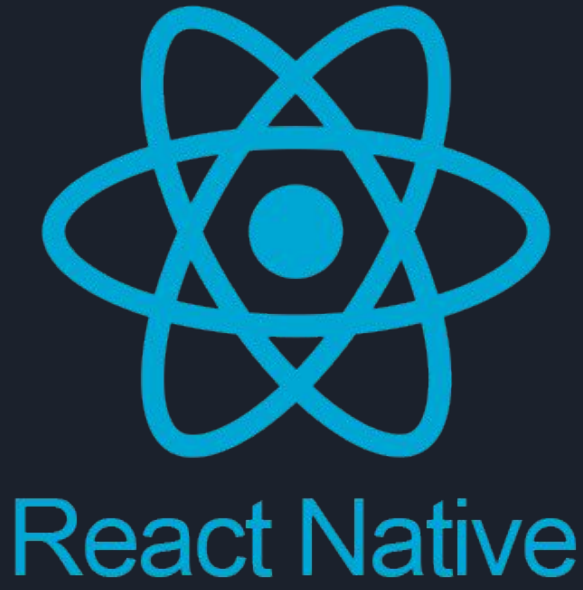
This project is divided in 3 parts: Door mechanism design, door security system and database management.

Our part is door security.

Languages used

- Database communication via TCP
- Encryption and decryption

Languages used



- Application design
- Inner application function (doesn't include communication with the database)

App Emulator

- Emulating the application

Group Objectives

Create a secure system to replace the deti door system by:

- Creating methods that replace the use of key cards via wireless communication.
- Use encryption to secure the wireless communication.

Functional Requirements

- Fully functional App
- RSA Encryption (asymmetric key)
- AES Encryption for communication (5 minute expiration)
- Wireless TCP communication between app, server and door
- Mock database

Non Functional Requirements

- More safety measures
- Handle multiple TCP connections
- Fast response times
- Compatibility with other project parts

Not Responsible For

- A more complex database
- Security in the database
- Door hardware

Target Audience

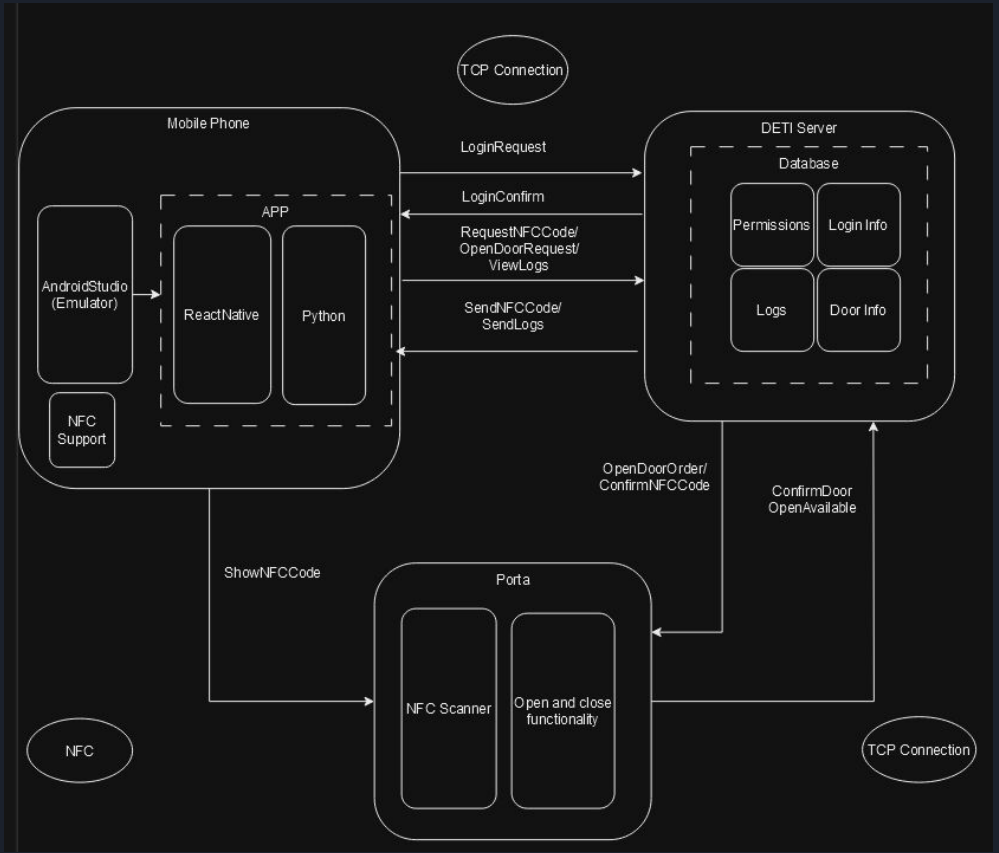
- Deti professors, students and employees (no need for keycards)

- Deti security personnel (helpful interface).

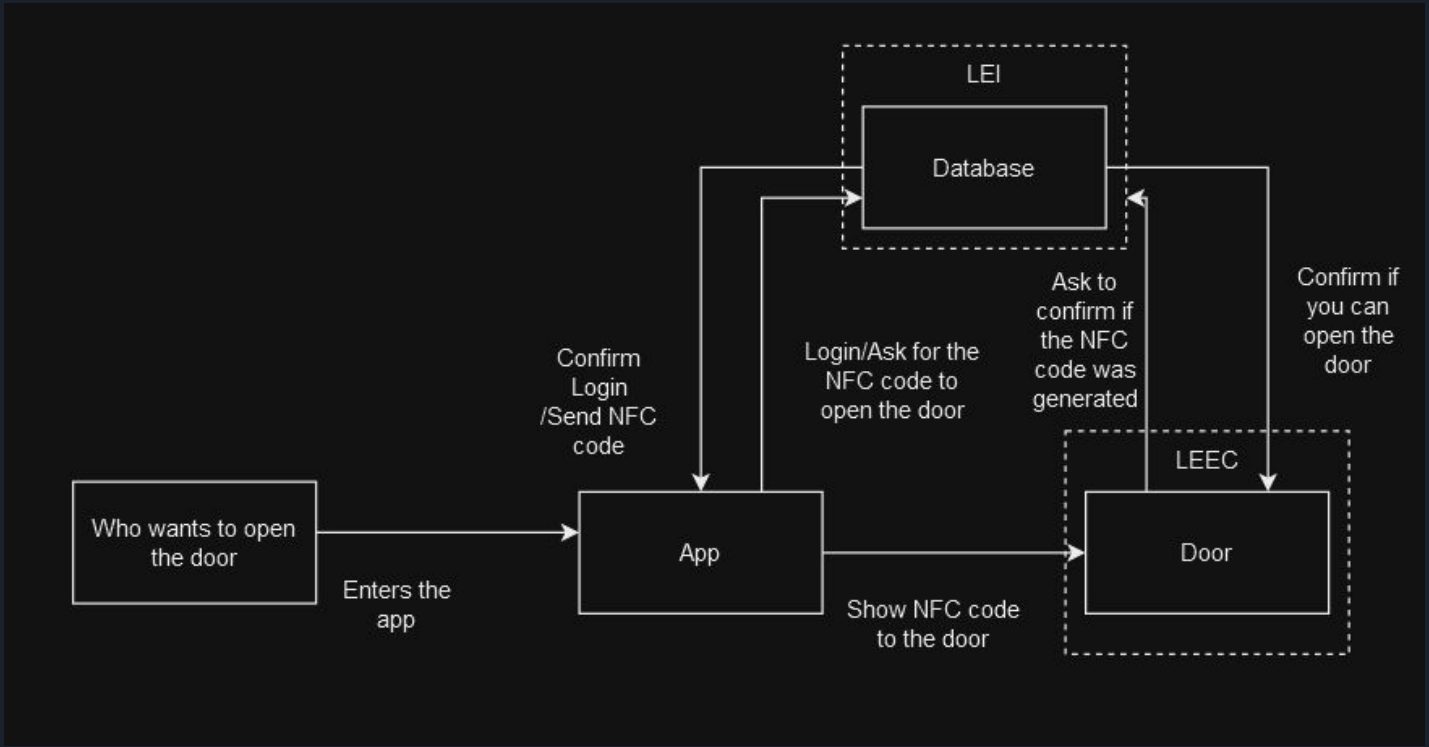
Assumptions and dependencies

- Server capacity
- Other groups
- Possible better methods of security
- Electricity and Wi-fi

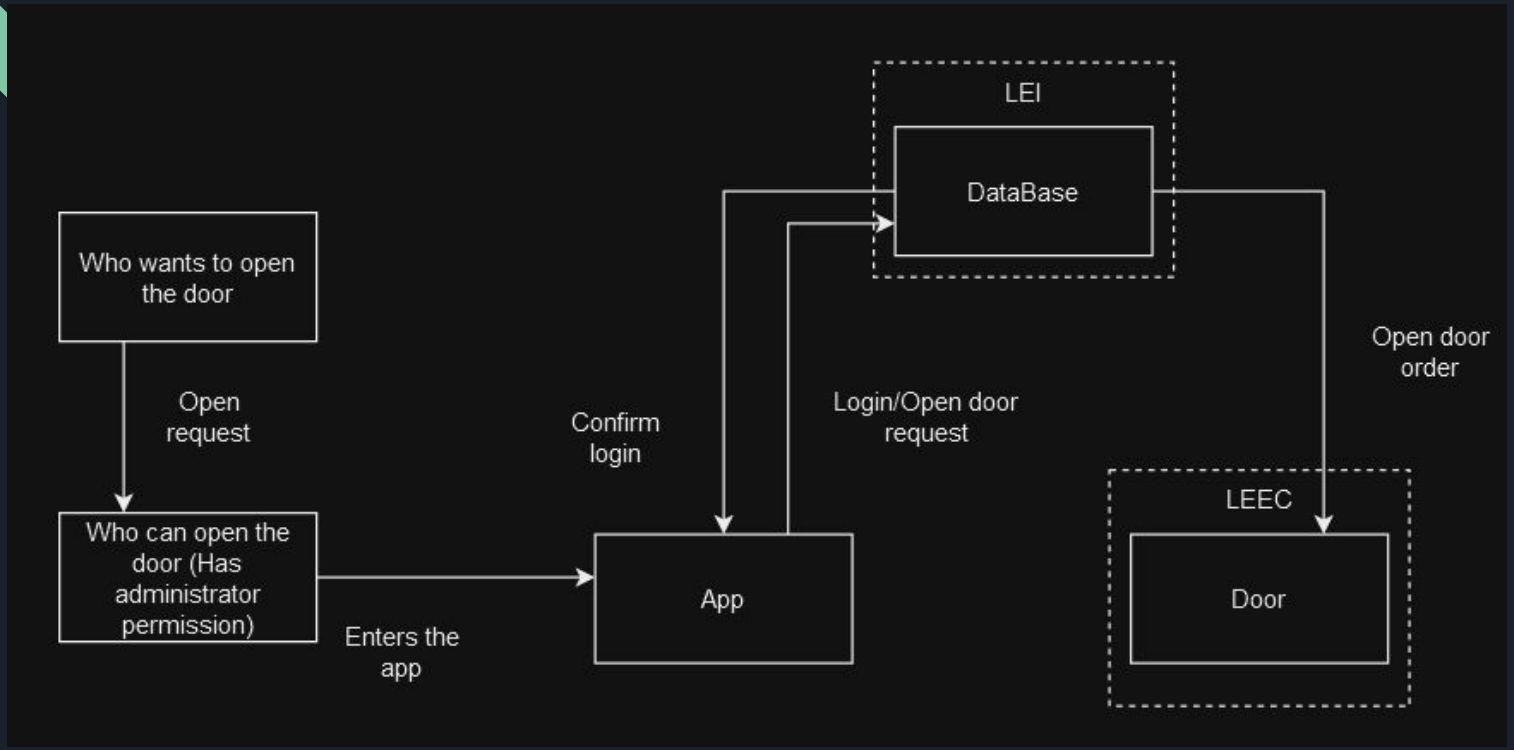
General Architecture



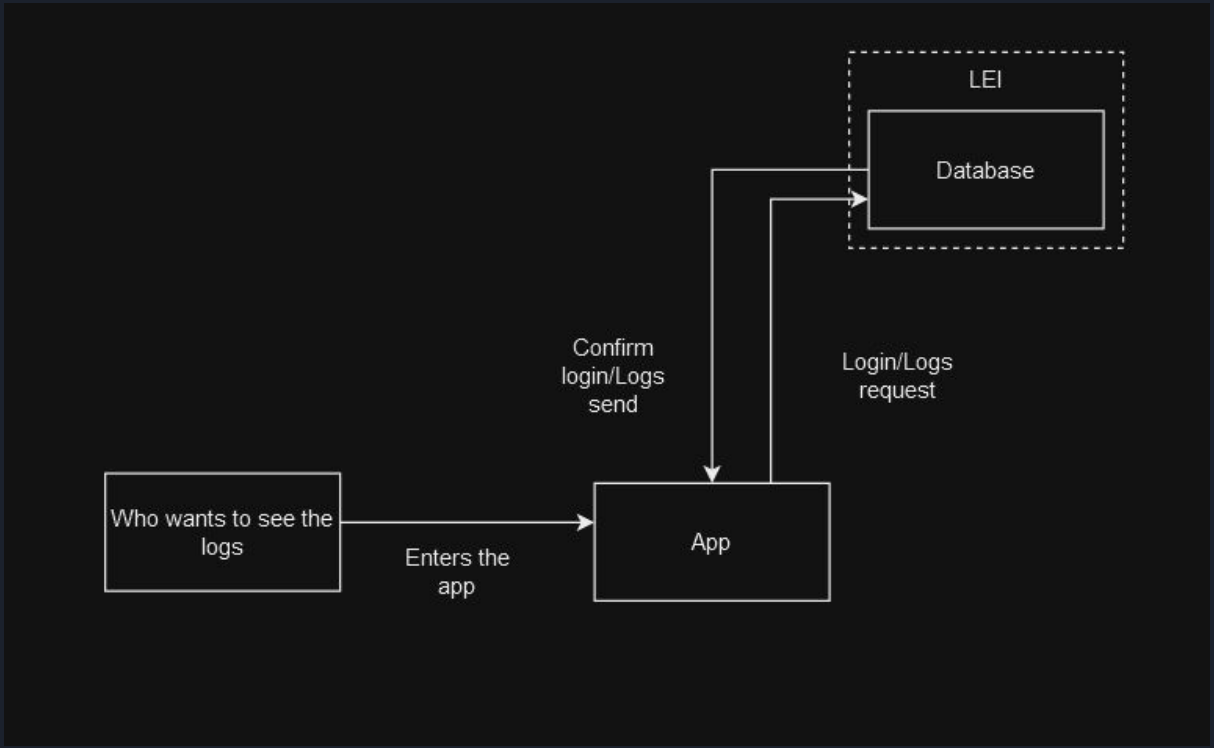
NFC Architecture



Wifi Architecture



Logs Architecture



Personas

Background: Luís Almeida, 20 years old. LECI student (2nd year). Has difficulties in the SSE class. Requires a voltmeter to better study for the class. Voltmeter is stored in a DETI locked room.

Goal: Enter room that stores voltmeters.

Motivation: Acquire a voltmeter

for a SSE class to study better.

Personas

Background: João Gomes, 45 years old. Works as a DETI security guard. Has to help students open specific locked doors when necessary.

Goal: Open the door for a student remotely.

Motivation: Quick and easy

method of opening the door remotely.

Use Cases

1 - Open door via NFC

2 - Open door via WiFi

3 - Access the Logs

Thanks for your attention!

and

Q&A