

Smart lock



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Introduction

The project has important characteristics for a home today that are security and limitations for an environment where the user can feel safe when he is not in his home since it consists of an automation of a house where the user arrives at his home by entering A code to your security plate and if an error is achieved 5 times the sheet will activate security by blocking all the accesses that can be made to the house in this way if the user does not own the house cannot access without knowing the password, For this project everything consists of assembly programming in the Kinetis card for the development of this project.

Scope of work

This project is developed for people who need to have a touch of security in their own home in this way reaching agreements with users to install the system in their home, the interesting thing about this project is that when you reach the user who needs this service operation is going to be something simple so that the user has the ability to understand it easily and cannot have problems with it.

Project objectives

Our goal is to be able to develop this project to somehow be able to take it to the outside public and be able to obtain resources through this project since apart from obtaining resources we also create a state where the user who required this service feels more secure to live in their home since it will keep you more safe and secure of being and not being in your home since through our system we will be able to take care of your home without your being in your home.

Schedule

We plan on accomplishing on 8 weeks the final project. Here we will define what we have planned to do each week.

On week one we will make the physical connections between the number pad, solenoid, dc motor and microcontroller.

On week two, we will make the external enclosure and mock-up to have a visual representation of a real-life application of our project.

On week three we will define how the microcontroller will communicate or interact with each component. It could be via an IC, or through transistors and other electronic components.

On week four we will create and solder any PCB we might use, to assure that later we will not have problems with protoboard prototypes getting disconnected or tangled up.

On week five we will make test programs for every single component independently, with the mere purpose to test the functionality of each part.

On week six and seven we will integrate all the main ideas of the test programs made the week before. These two weeks will be crucial for the sake of the project, because it is here where we will make sure everything works as it should when all is connected properly.

Finally, week eight will be dedicated to debugging any issues that might have arisen from the programming.

Expected outcomes

We want to make this product work because if the goal is perfectly achieved we can create a safer environment in the homes of our home since today the place where we live that is Mexico is not very safe for everyone and with our project we can create a option for people to feel safe inside their own home.

Acceptance criteria

For this project to be considered finished in an appropriate way, it should cover the next points. First, it should be able to withstand any external forces that try to open it. Another important point is that the door only must open if the correct code is inserted; if not, it should warn the user that the code introduced is incorrect, blink the red LED and play a low-pitch tone. When the code is correct, the green LED should blink, the solenoid should retract and open the door, play a high-pitched tone from a buzzer; at the same time, it should open the curtains and turn on the lights of the room.

Materials

* 3x3 matrix keyboard
* Kinetis kl27z
* Wood
* Solenoid
* Motor control circuit
* DC Engine
* Relays
* HC05 Bluetooth
* LEDs
* Light bulb
* Plug
* 5v adapter
* Hinges
* Buzzer