

The Smart Door

Forgot your door key? We thought of the idea of the smart door. This door will only use your voice to get inside. Using your own made passwords, you can either get inside your house or lock it again when leaving. This application makes use of a Bluetooth connection using your phone for example. All of your own made passwords will be stored locally in a database. It will know when you are standing in front of your door since you are close by with the Bluetooth connection and therefore respond to only you and your passwords.

Components

For archiving our goal, we will use a Raspberry Pi 4. This controller will measure the Bluetooth strength of the nearby devices and give input to the door, in case the correct password was said. Accordingly, the user would need a Bluetooth device, which could be a mobile phone or a Bluetooth chip, which they can pair with the controller. Each user has their own passwords which they can set up. They will then be linked to their own Bluetooth device and the passwords can be told.

To recognize that the user is saying something, the microcontroller has a microphone, which detects the user input. For pairing the Bluetooth devices, adding passwords, and for testing purposes of the door mechanic, we will use a small display, which is connected to the controller. Google API will recognize the words you said and translate them back into text which can be further processed by our controller.

For storing the keywords and passwords from the user, we will use a MySQL database which is locally hosted on a docker container. The user has the opportunity to set a password for opening and locking the door. The Bluetooth device id and the passwords will be stored, to assure that the passwords are working for the correct user. To add another possible layer of security, it might be possible to add voice recognition to each Bluetooth device. See the decomposition diagram on the next page for a more detailed overview.

Physical Decomposition Diagram

