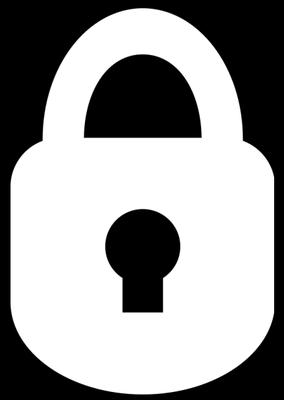
WIRELESS OTP LOCKING SYSTEM USING ARDUINO



Presented by
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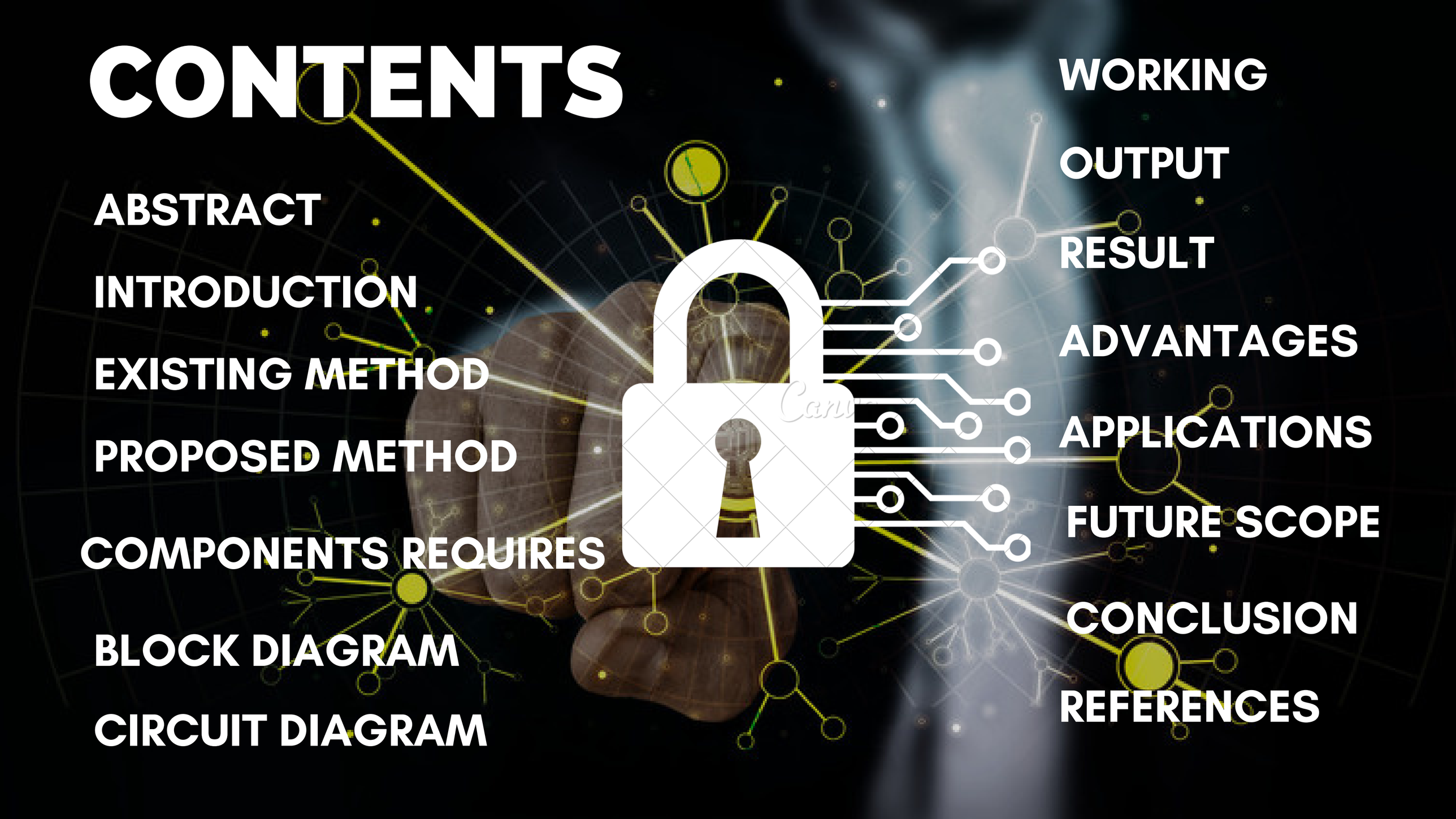


ABSTRACT

Security is the most concern for anyone nowadays. As the most natural way physical key is widely used to lock or unlock the door. Different locks have different keys so it is burden to carry sometimes it may be stolen misplaced and lost. The purpose of the proposed system is to provide extra security that can be used in homes and services. The proposed system is OTP based smart wireless lock system using Arduino Uno. If the user generate correct password OTP is sent on the user's device via Bluetooth. If the entered OTP is matched then the system will be unlocked and required task can be initiated. If either of the password or OTP is wrong then the access is denied. The proposed system provides low cost service and high security compared to the available security systems


OTP Based
Smart Lock

INTRODUCTION

The main aim for providing locks for our home, school, office etc is for security of our lives and property. With the advancement of technology and increase the use of IOT automatic door lock system has become a standard feature on many different types of buildings and homes. And they are become popular every day to develop electronic devices which provide security.

Lorem ipsum dolor sit amet,
Donec tempus tellus sapien, ut
Sed dignissim tellus sed

Home security has been a major issue because of the increase in crime rate and everyday wants to take proper action to prevent unauthorized user, so we propose an OTP based smart wireless lock system to enhance the security of digital door- locks.

EXISTING METHOD

The electronic wireless locking system is not that safe because you might forget your password, or it might be hacked by others, while entering the password on your device.

A key-based locking system has now become outdated because if your key is lost or stolen, it creates a huge problem. Carrying a large number of keys is a burden and it can be stolen, misplaced or lost. So, we can make a smart lock that has the capability to remove all these security problems.

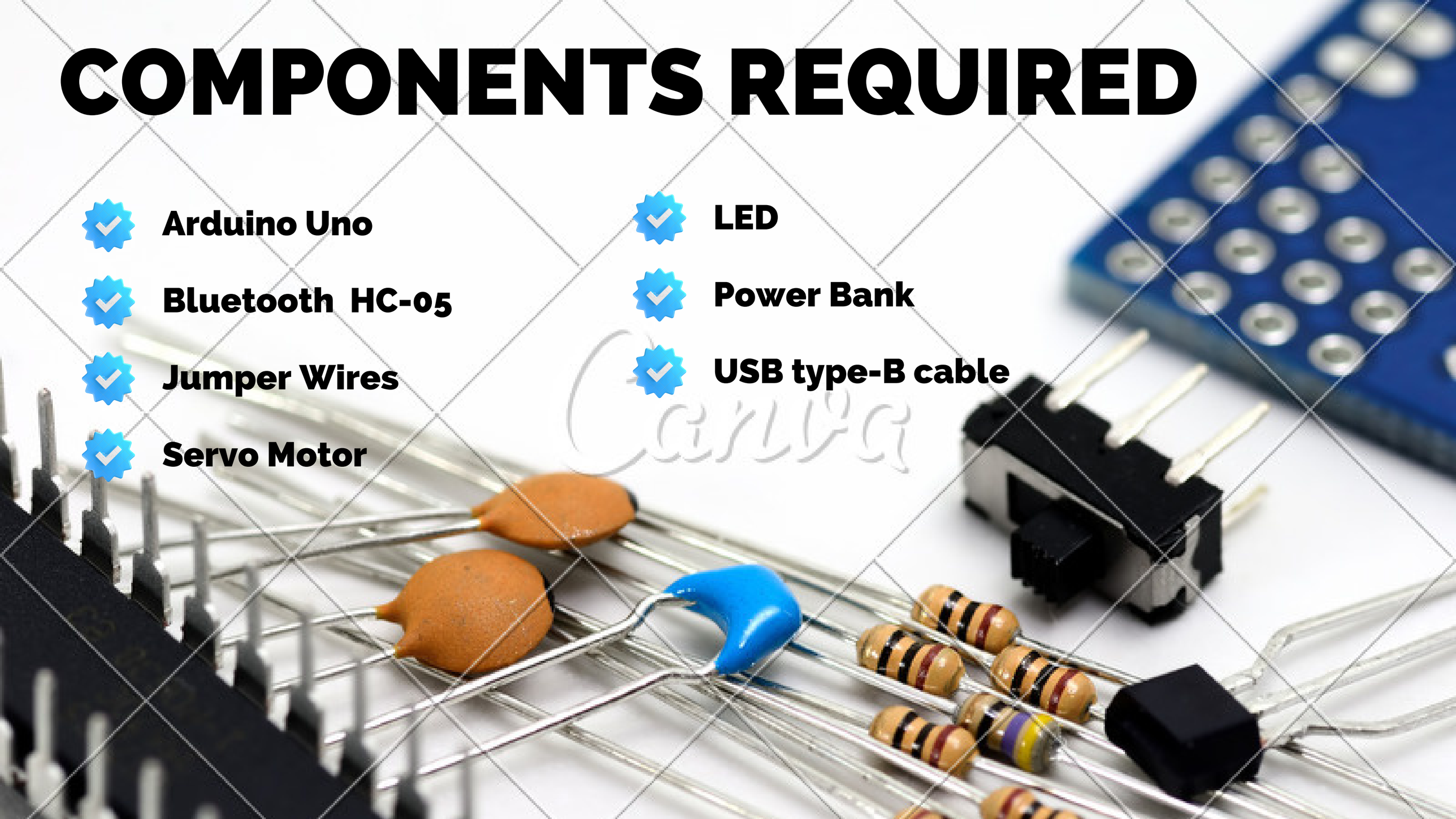
PROPOSED METHOD

Our goal is to design a solution for secure access control that can replace physical keys for accessing door. We propose a solution using OTP based on smart phones providing wireless and automatic unlocking via Bluetooth.

The design will allow easy implementation and the device will work autonomously. This will enhance the security and will eliminate the need of carrying physical keys.

COMPONENTS REQUIRED

- Arduino Uno
- Bluetooth HC-05
- Jumper Wires
- Servo Motor
- LED
- Power Bank
- USB type-B cable



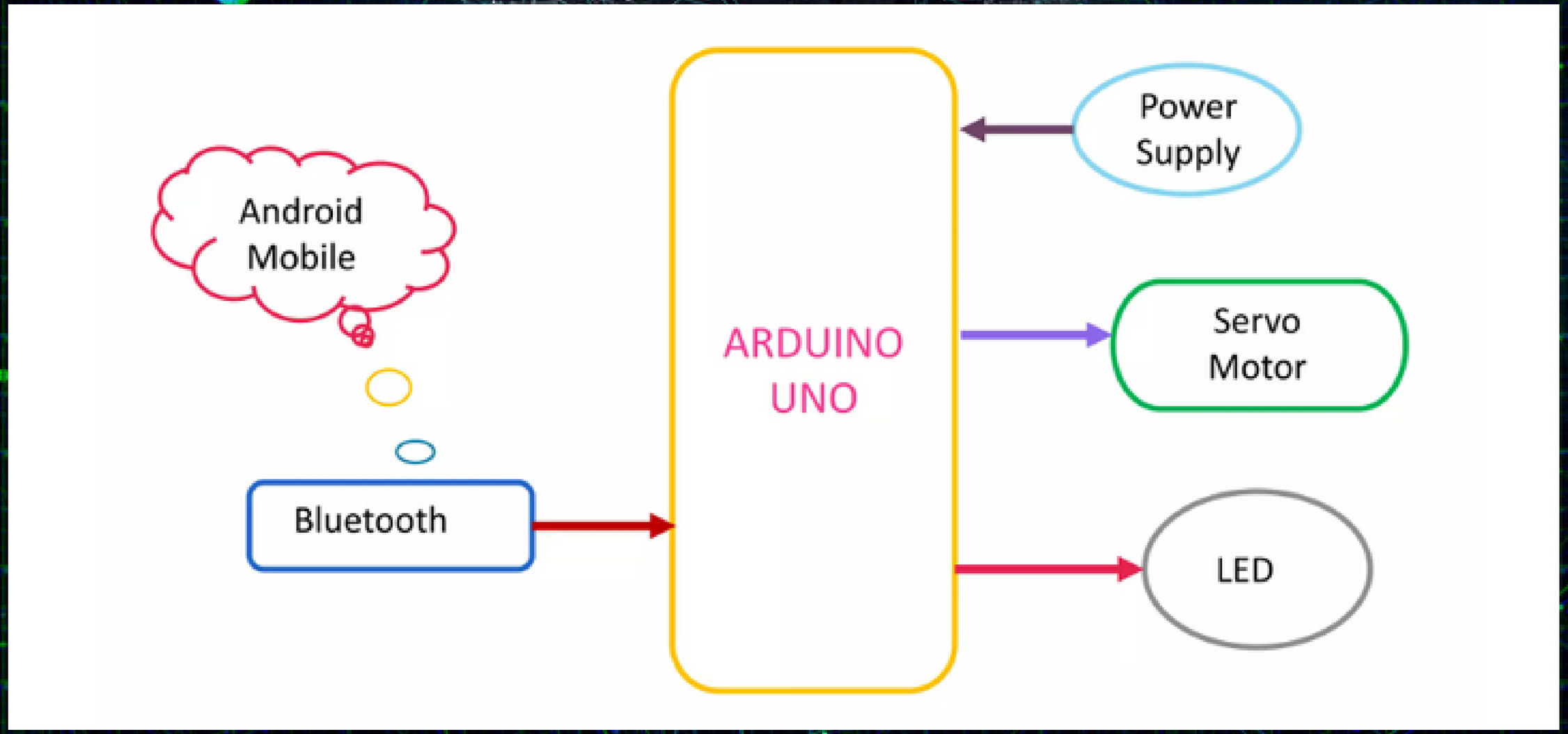
WORKING

First, we need to write a program for that we need to include the library files. Here we include a servo library because of using the servo motor. After writing the program let's make Android APP i.e. the MIT(Massachusetts Institute of Technology)app inventor. Which is used for lock and unlock the door. Connect the components to Arduino uno and all the components to power supply. Then we have connected all the components.

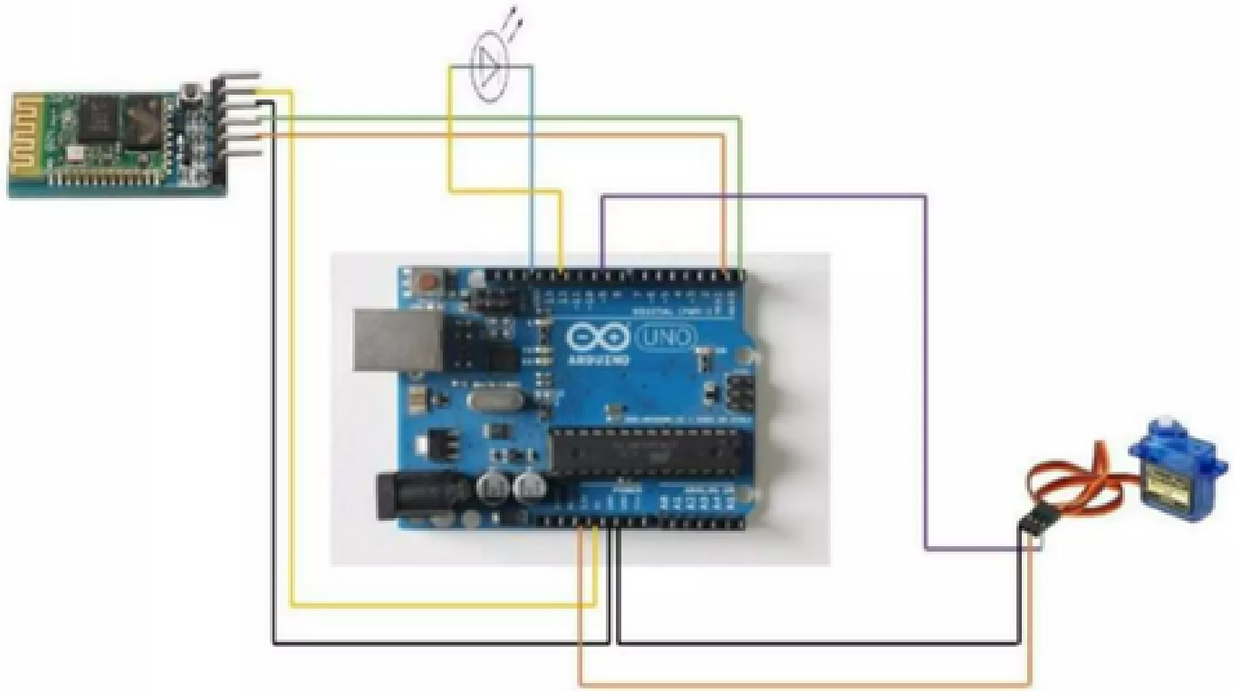
Next, open the installed App, then turn on the Bluetooth of the phone, tap on HC-05 module. On successful pairing, you will get a 'connected' message on the App. After that, tap on the key icon to send device id to match. If the device id is matched, it will send an OTP to your app that you can see in App text bar between Bluetooth and lock icon.

Now, you can tap on the lock icon to unlock your Smart Lock. If everything is ok then servo moves unlocking mechanism and onboard LED of Arduino lights up indicating successful unlock. We have used servo because of its high torque, and also because we can control the angle of its movement that helps in unlocking mechanism of lock.

BLOCK DIAGRAM

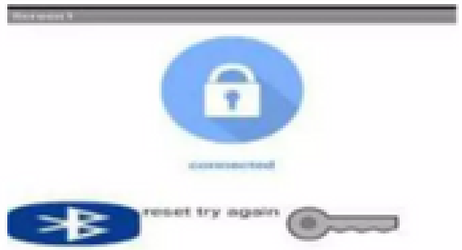


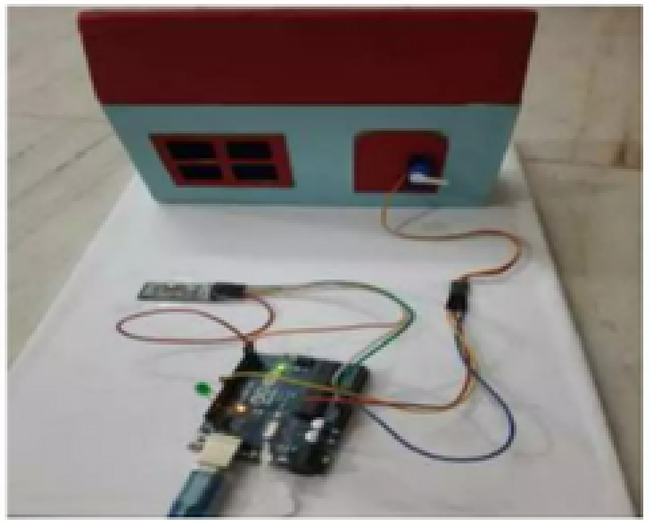
CIRCUIT DIAGRAM



OUTPUT

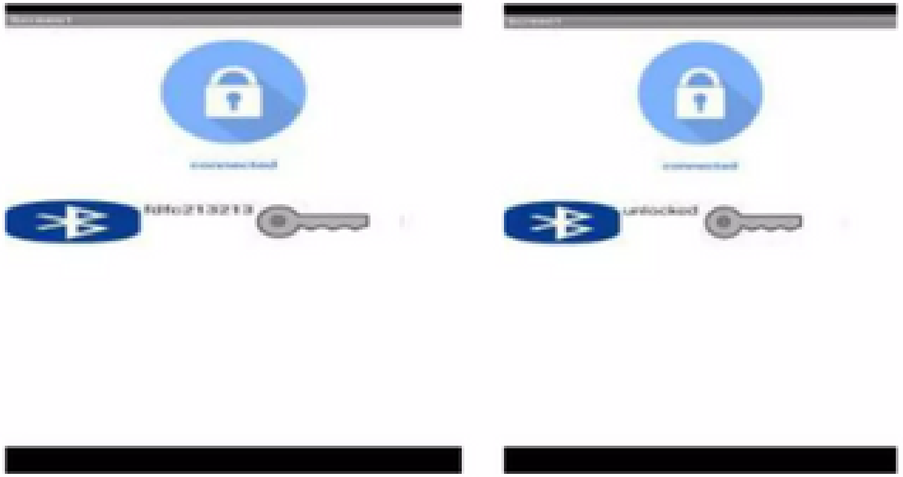
- When mobile Bluetooth is connected to HC05 module.

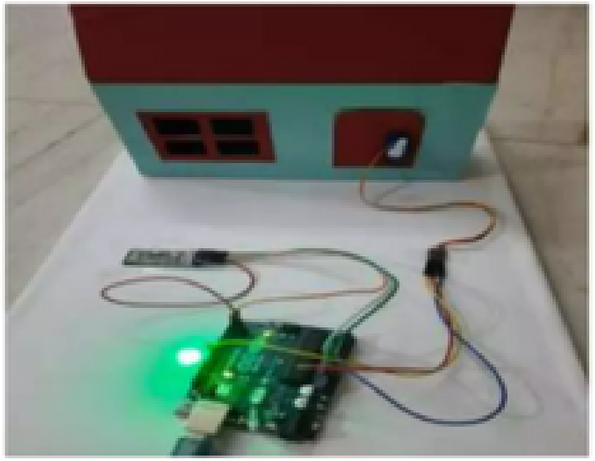




- The figure shows that the door is locked.

- The fig shows that the OTP is received to OTP app lock in our android mobile.





- The figure represents that door opens when OTP is matches.

RESULT

The figure shows the circuit of the OTP based smart wireless lock system using Arduino uno.

The figure describes that the opening and closing the door by the received OTP to our mobile through Bluetooth.

ADVANTAGES

- It has more security
- It does not allow unknown people.
- It is uesd for anti-thefting strategy
- It reduces the efficiency f the cost .
- Simple and easy implementations
- It has less power consumptions.

APPLICATIONS

- Control of doors and windows shutters
- Faster operation and efficient
- Security System
- This project can be used in Industries, Home, office and Shops
- It can be used for garage doors and gates.
- By using smart app, disabled or elderly people can control lock as well as appliances anywhere inside house.

LIMITATIONS

- Smart phone can be lost.
- Bluetooth module can be connected to another device.

FUTURE SCOPE

The future scope for this is to extensions within the app cloud also be viewing who is passing through the door by adding the camera and sending stream directly to mobile device.

This can also extends to, if someone is trying to break in the door. Alarm will start beeping on mobile device. The other extension for this project is to add a camera with built-in SD card and also the finger print sensor

CONCLUSION

Many times we forgot to carry the key of our home. Or sometimes we come out of our home and door latch closes by mistake. In these cases it is really difficult to get inside the house. The main proposal for this project is to increase the extra security to the people .This project will help in keyless entry and at the same time will be more secure. This idea will minimize the overall cost by the use Bluetooth.


Thank
You