

Home Security using Laser module and RFID

Zaki Shaikh 1032211821

Arnav Deshmukh 1032211848

Shlok Sarda 1032212328

Harshal Thoke 1032212348

Reet Sharma 1032211868

12/04/2023

IOTL Mini Project Synopsis

Introduction

In today's world, security is a top priority for homeowners. With the rise of smart home technology, it's easier than ever to secure your home using the power of the internet. A home security IoT device is a smart device that uses the Internet of Things (IoT) technology to provide enhanced security features for your home.

These devices can include a wide range of sensors and cameras that can monitor for potential threats such as break-ins, fires, and even water leaks. With the ability to connect to your home's Wi-Fi network, these devices can be accessed remotely from your smartphone or other mobile devices, giving you greater control and peace of mind over your home security.

In addition, many home security IoT devices are designed to integrate with other smart home devices, such as smart locks, smart lights, and thermostats, providing a more comprehensive and convenient home security system. With features like real-time alerts, remote access, and easy installation, a home security IoT device can help you protect your family and property like never before.

Objectives

Literature Survey:

Respective Contributions of the Team:

This project was a team effort, and everyone contributed to every aspect of the project.

Mentioned below are just the highlights of their contributions.

Arnav Deshmukh - Coding and designing of the project.

Harshal Thoke – Helped in installing and fixing the components.

Shlok Sarda – Initiated the idea and was coding and designing alongside Arnav.

Reet Sharma - Came up with the 3D model design for implementation.

Zaki Shaikh – edited and drafted the project report and gathered the necessary data.

The objectives of our home security IoT device are to provide enhanced security for your home, protect your family and property, and provide peace of mind. Some specific objectives may include:

Monitoring: An IoT device can monitor your home for potential security breaches, such as intrusions or break-ins. This can include sensors that detect motion, sound, or changes in temperature or light levels.

Alerting: The device can send alerts to your smartphone or other device when an alarm is triggered or when suspicious activity is detected.

Remote Access: The ability to remotely access and control the device from your smartphone or other device can give you greater control over your home security and allow you to respond quickly to any threats or emergencies.

Integration: An IoT device can be integrated with other smart home devices, such as smart locks, lights, and thermostats, to provide a more comprehensive and convenient home security system.

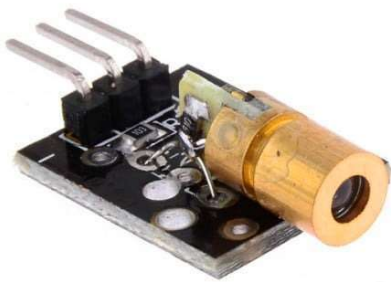
Overall, the objective of our home security IoT device is to provide you with greater control over your home security and peace of mind, whether you're at home or away.

Components

Listed below are the components:

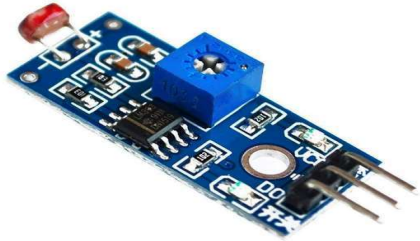
Laser module:

A device that emits a single static laser beam of single or multiple wavelengths - or colours if we talk about the visible spectrum of light.



LDR module:

The LDR Sensor Module is used to detect the presence of light / measuring the intensity of light. The output of the module goes high in the presence of light and it becomes low in the absence of light. The sensitivity of the signal detection can be adjusted using a potentiometer.



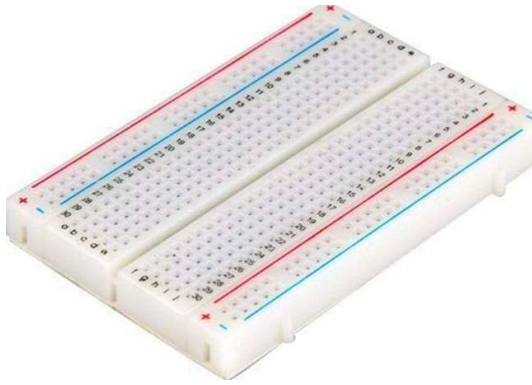
Arduino Uno:

Arduino UNO is a low-cost, flexible, and easy-to-use programmable open-source microcontroller board that can be integrated into a variety of electronic projects. This board can be interfaced with other Arduino boards, Arduino shields, Raspberry Pi boards and can control relays, LEDs, servos, and motors as an output.



Breadboard:

A breadboard, solderless breadboard, or protoboard is a construction base used to build semi-permanent prototypes of electronic circuits. Unlike a perfboard or stripboard, breadboards do not require soldering or destruction of tracks and are hence reusable.



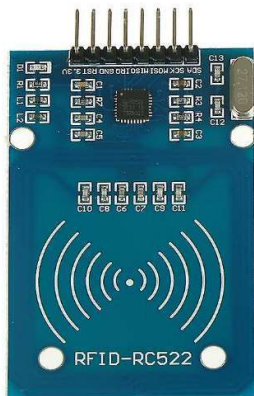
Buzzer:

A buzzer or beeper is an audio signaling device, which may be mechanical, electromechanical, or piezoelectric (piezo for short). Typical uses of buzzers and beepers include alarm devices, timers, train and confirmation of user input such as a mouse click or keystroke.



RFID Module:

RFID (radio frequency identification) is a form of wireless communication that incorporates the use of electromagnetic or electrostatic coupling in the radio frequency portion of the electromagnetic spectrum to uniquely identify an object, animal or person.



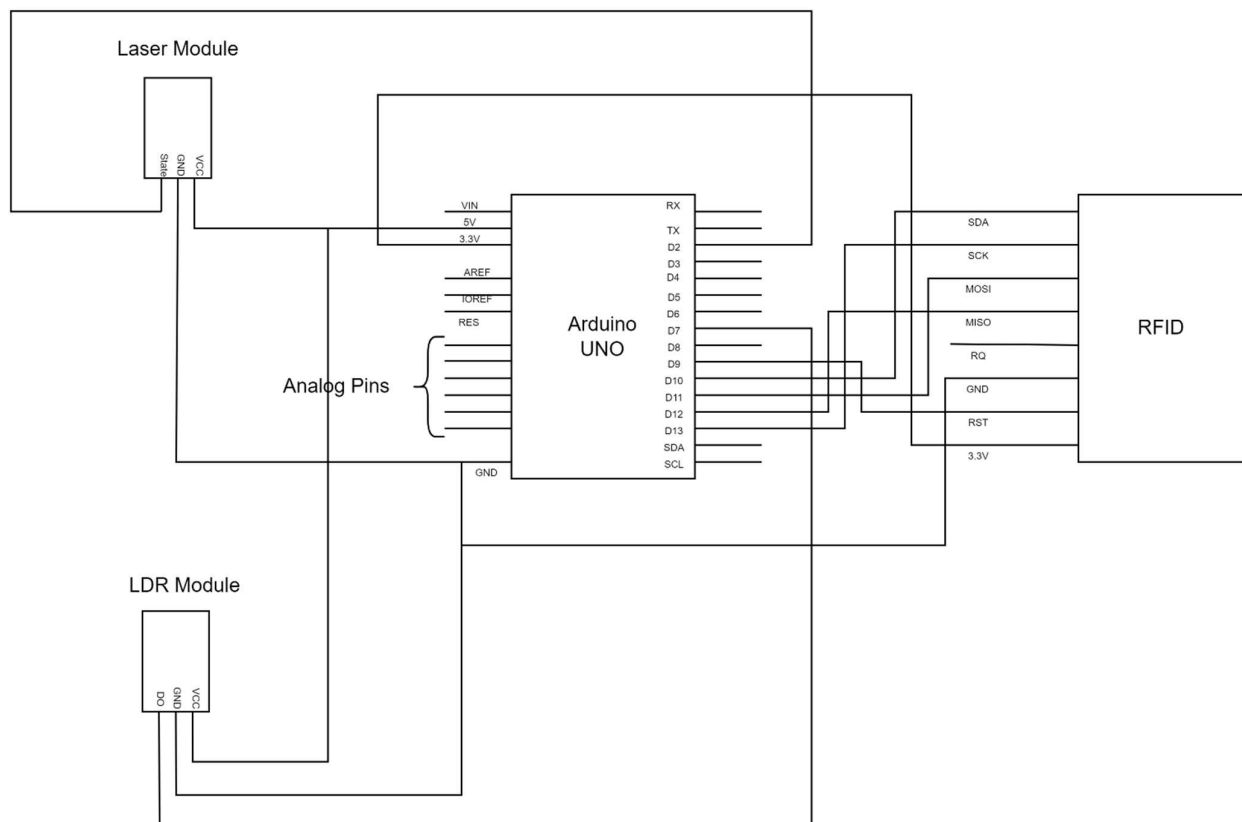
Outcomes

The outcomes of a home security IoT device can be numerous and significant. Some potential outcomes include:

1. **Enhanced security:** By monitoring your home for potential security breaches, a home security IoT device can provide enhanced protection for your family and property. This can include detecting and alerting you to suspicious activity, such as a break-in, and even deterring potential intruders from attempting to enter your home.
2. **Peace of mind:** Knowing that your home is protected can provide a great sense of peace of mind, especially when you're away from home. With remote access and real-time alerts, you can stay connected to your home security system and respond quickly to any threats or emergencies.
3. **Cost savings:** A home security IoT device can help you save money on your homeowners' insurance premiums by reducing the risk of theft and damage to your property.
4. **Convenience:** With the ability to control your home security system from your smartphone or other mobile device, you can enjoy greater convenience and flexibility in managing your home security.
5. **Integration with other smart home devices:** A home security IoT device can be integrated with other smart home devices, such as smart locks, lights, and thermostats, to create a more comprehensive and convenient home automation system.

Overall, the outcomes of a home security IoT device can include improved security, peace of mind, cost savings, convenience, and integration with other smart home devices, making it a valuable addition to any modern home.

Implementation



Conclusion

In conclusion, the Internet of Things (IoT) is transforming the way we live, work, and secure our homes. Home security is a critical aspect of modern living, and IoT devices have made it easier and more convenient to protect our homes. The IoT device for home security that we have developed is a reliable and efficient system that can be customized to meet the specific needs of each homeowner.

Our IoT device uses advanced sensors to detect any suspicious activity. The data collected is then analysed in real-time by our machine learning algorithms to provide alerts and notifications to the homeowner. Additionally, the device can be integrated with other smart home technologies, such as smart locks and voice assistants, to provide a seamless and comprehensive security solution.

Overall, the IoT device for home security that we have developed is an essential tool for modern homeowners. It provides peace of mind, convenience, and advanced security features that are not possible with traditional home security systems. With the increasing demand for smart home technologies, our IoT device is poised to revolutionize the way we secure our homes.