Laser Trip Wire Final Project

This project is made using Arduino hardware and its compatible components. The code is written in C/C++ language and built in the Arduino IDE

**What the product does?**

This code will detect obstacles passing through it using a laser and a light sensor they will be in a constant loop with each other sending light and making sure it is getting the light and when that loop is broken it will sound an alarm which will be a buzzer. To recover from the broken system and to turn off the alarm the user has to enter the system password. Once the system is armed the only way to get inside is by knowing the master password. Uses a secure password that disarms and arm the laser security system keeping intruders away from the location. Also, it informs the user when the system is armed or disarmed so they know when the system is on or off through the use of led and Bluetooth.

*Proper working system video is included in the project folder.*

**Test cases**

* When an intruder passed the led turned red and the alarm buzzer buzzed
* When the intruder typed an incorrect password in the broken state the red led started blinking and the alarm buzzer kept buzzing
* When the master password was entered only in the armed state the system would go into configuring/disarmed state which made the led turn blue
* When the user password was entered correctly the broken system would go back to armed
* When the user password was entered correctly in the system configure/disarmed state the system would go back to the armed state
* When a key was pressed the keypad buzzer buzzed
* All these states mentioned above were transmitted to the Bluetooth devices through Bluetooth

**Led status codes**

* A green light will indicate that the laser is armed
* A red light will indicate an intruder alert.
* If the password is entered incorrectly the red led will flash to inform you that the password is incorrect.
* A blue light will indicate that the system is in configure/disarmed mode which lets anyone go through without sounding the alarm

**Further improvements**

* Allow the user to change the password
* Lcd screen shows the status of the system
* Send an email to the user when an intruder has passed
* Informing the user of the state of the system through network or wifi