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RESEARCH ARTICLE OPEN ACCESS

Laser Tripwire security system using ArduinoUno

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ABSTRACT
Technology develops day by day within the world. Nowadays the crime gang also improves their technology to hold out their operation. So technology of security should be modern with time to shield the planet from crime. We arrange to make a security issue as our project. During this project, we've got to used a laser ray to hide an outsized area. We all know laser light goes too long distances without scattering effects. Its additional laser beam is just at the source and destination point, in any case invisible. These two properties help us to develop a contemporary security system, which may name as the "Lase Tripwire Security System using Arduino UNO." When somebody or object crossover the laser light, automatically the buzzer starts ringing. The laser ray goes through a long-distance without scattering effect and the ray is almost invisible.
Keywords: Arduino Uno, Laser diode, Seeed Grove Module, Keypad Matrix(4*4), IDE.

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I. INTRODUCTION

Security is the most important factor in day-to-day life. The need for security is the basic necessity of every individual. The sensation that we are safe and everything around us is fine is imperative for peaceful living. Be that because it may, during this unsafe world, when crime, terror, and dangers are at their pinnacle, how might one achieve that suspicion of safety? Here, a laser security system provides us with an answer and for this reason, more and more people are installing them so as to remain order safe and secure. A laser tripwire Security system may be a system used for security purposes. It's a large application in fields of security and defense ranging from the protection of a simple household material to an awfully high valued material of a corporation. They once accustomed to being very expensive solutions for security needs. Owing to cost-cutting and fast technological advancements, this type of security system is becoming more pocket-friendly. During this project, we've got designed Laser Light Security System Using Arduino with Alarm with the applying of Laser Diode Module KY-008. The project idea revolves around creating a security alarm system using a laser diode module. Whenever any object will obstruct the rays the buzzer alarm will start ringing. This project will be implemented anywhere, not only in buildings or premises but many precious things like jewelry, diamonds, precious antique items within the museum, etc many other things are also are protected using such an invisible ray. Many people secure their homes, office, shops, warehouses, etc with the Tripwire security system of the document, cut and paste into it, and/or use markup styles. Thus, we've designed a security system using a tripwire system with Arduino and sensor, which is handy, portable, cost-effective, and highly effective yet. Such security alarm systems are hugely in demand for security purposes, and thus the given system is often proved useful and effective seeable of the above features.

II. LITERATURE SURVEY

Security could be the most important factor in daily life. Need of security is that the basic necessity of every individual. The Sensation/feeling that we are safe and everything around us is all right is imperative for peaceful living. Be that because it may, during this unsafe world, when crime, terror, and dangers are at their pinnacle, how might one achieve that suspicion of safety? Here, a laser tripwire security system provides us with a solution and for this reason, more and more people are installing them so as to remain to stay safe and secured. Different electronic security systems are often utilized at the house and other significant working spots for security and safety purposes. A laser tripwire Security system/ alarm is a device used for Safeguard/security purposes. It's a good application in fields of security and defense ranging from the security of a straightforward household material to a very high valued material of an organization. They once accustomed be very

expensive solutions for security needs. Attributable to cost-cutting and fast technological advancements, this type of security system is becoming cheaper and more affordable. When the bad guys try to sneak up in the mid night, they kick the wire and pull over, making a rattle that awakens the sleeping good guys, who win the day. A laser tripwire security system works with the identical principle and working. Instead of a string, there's a ray of light surrounding the area, and instead of a can of rocks, there's an alarm of one sort or another.

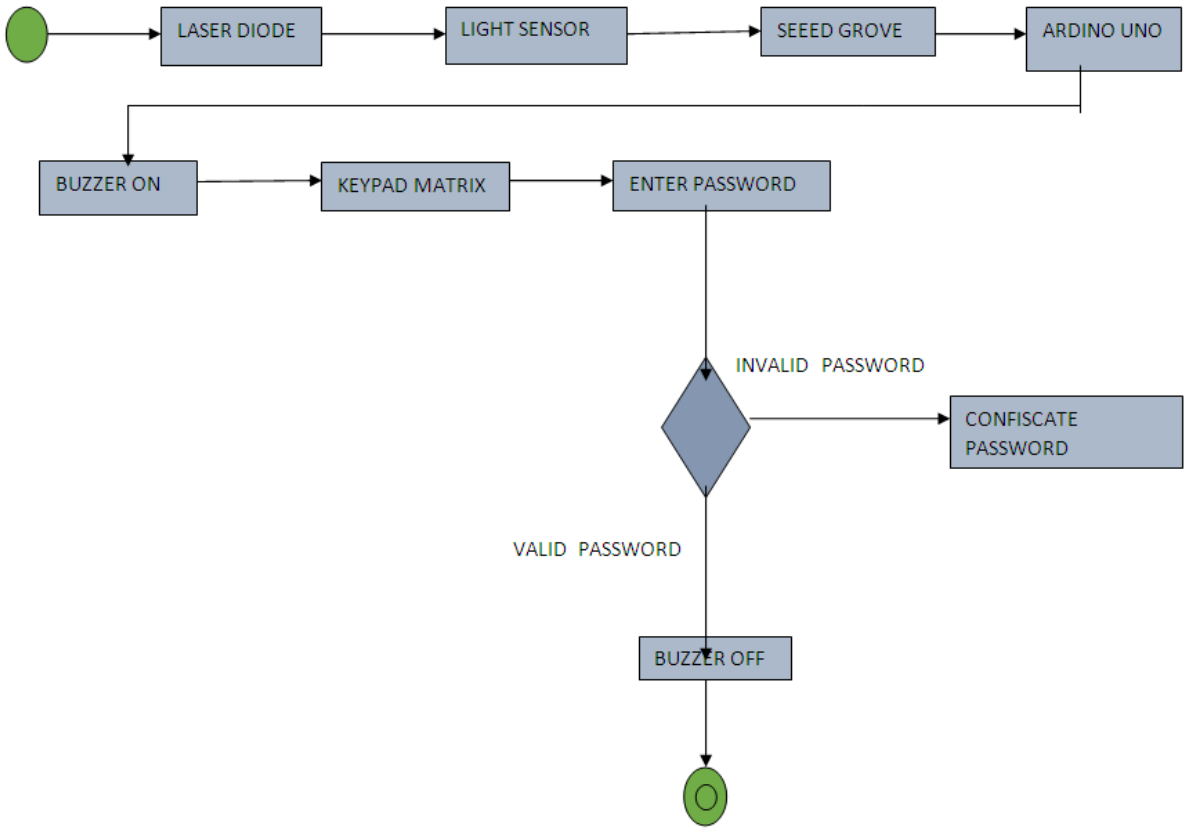
PRINCIPLE:-

There are three essential components to a laser security system: a laser, an Arduino, and an LDR module. The laser could be a concentrated source of illumination that puts out a direct straight line, pencil beam, of light of a single color. The LDR is sensitive to light. The LDR is connected to the Arduino UNO. When the laser beam is interrupted and can't reach the LDR, its voltage output changes, and therefore the circuit senses the change and puts out a warning signal, and then the buzzer starts alert signals.

OBJECTIVES :-

The main objective for developing this system is:

- To produce security for the house.
- To produce a user-friendly system
- To produce security for bank lockers
- To produce a cost-efficient system.
- To safeguard a valuable item.
- To safeguard the individual from terror and threat within the unsafe world.
- To form and study the functions of the laser security systems.



III. PROPOSED MODEL

In this, we present the speculation on the laser tripwire security system. During this proposed diagram incorporates several blocks like laser module, LDR, buzzer Alarm is connected to our controller. There are three main components to a laser security system: a laser, an Arduino, and a Laser diode module. The laser could be a source of light that puts out a straight line, pencil beam, of light of a single color. The LDR is sensitive to light. The LDR is connected to the Arduino UNO. When the laser beam is interrupted and can't reach the LDR, its voltage output changes, and the circuit senses the change and puts out a warning in the code and then the buzzer starts alert signals. The project basically works on the principle of Laser light Intensity. If by any means the laser light is interrupted the alarm will start unless it is reset with the pushbutton. The laser

may be a concentrated light source that puts out a straight beam of light of a single color. The LDR is sensitive to light and puts out a voltage when the laser light hits it. When the laser beam is interrupted and can't reach LDR, its voltage output changes, and eventually the alarm will ring.

• Arduino UNO:-

The Arduino UNO is that the best board to get started with electronics and coding. If this can be your first experience tinkering with the platform, the UNO is that the most robust board you'll start fiddling with. The UNO is that the most used and documented board of the whole Arduino family.

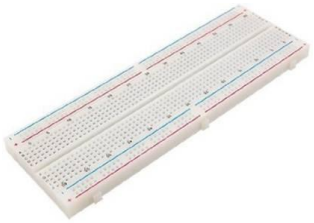
• Laser Diode Module (KY-008):

Laser Transmitter module KY-008 for Arduino emits a dot-shaped, red light of laser beam. The KY-008 Laser transmitter module consists of a 650nm red laser diode head and a resistor. Handle with caution; don't look directly into the laser head. The specification of Laser Transmitter Module KY-008 is as follows:

• Operating Voltage – 5V
• Output Power – 5mW
• Wavelength – 650nm

- Bread Board

A bread board may be a rectangular plastic board with a bunch of little holes in it. These holes allow you to simply insert electronic parts to example (meaning to make associated check associate early version of) an electronic circuit, like this one with battery, switch, resistor, associated an LED (light-emitting diode).



- Connecting wires

Connecting wires permits associate degree electrical current to travel from one purpose on a circuit to a different as a result of electricity desires a medium through that it will move. Most of the connecting wires are created from copper.

Figure4: Connecting wires

- Register

A Register could be an assortment of flip flops. A flip flop is employed to store single bit digital information. For storing high number of bits, the storage capability is magnified by grouping quite one flip flop

Figure7: Register

- LED

To turn on associate LED, the Arduino has to send a HIGH signal to at least one of its pins. To show off the diode, it has to send a low signal to the pin. You'll create the LED flash by dynamical the length of the HIGH and LOW states.

IV. CONCLUSION

Laser Security System gives us protection from any crime, theft in our standard of living thus individuals are installing them so on to remain sheltered, secure and sound. Various electronic security systems will be used at the house and other important working places for security and safety purposes. It's one among the simple opportunities and source of saving manpower contributing no wastage of electricity. The "Laser tripwire Security System"

is a very important and helpful system. Using this model/technique robbery, thefts and crime are often avoided to large extent. Avoiding thieves end up in the protection of our financial assets and thereby their system provides us protection against all. The laser beam and LDR module system is extremely sensitive with a great range of work. The model senses the light emitted by the laser falling over the LDR connected with the circuit. Whenever the beam of laser light is interrupted by any means, it triggers the alarm or siren. This highly reactive approach has low computational requirement therefore it's the similar temperament to surveillance, industrial application, and smart environments.

ACKNOWLEDGEMENTS

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