

Anti Drone System Robot

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Abstract: Anti drone system is a system in which we can detect and destroy drones. Anti Drone System is a Technology that helps the military to deal with aerial threats. In today's time, there is a lot of danger from drones. It can be proved that drones cause great harm. This system has been created to protect airports, large public areas, stadiums and military purposes. This device works with Arduino uno, ESP8266 wi-fi module for controlling the drone, in this system there is a radar to detect the drone and there is motion sensor to detect living things such as animal, birds, humans. As an outcome this anti-drone system is developed to protect public spaces from aerial threats.

Keywords: Arduino UNO, ESP8266 wi-fi module, Motor driver, 2000mW Laser, Motion sensor, L293DMotor shield.

I. INTRODUCTION

Anti drone system is such a technology by which we can foil the intentions of enemies. We have chosen this project inspired by KALI. "The KALI (Kilo Ampere Linear Injector) is a linear electron accelerator being developed in India by Defence Research and Development Organisation (DRDO) and Bhabha Atomic Research Centre (BARC). It is said by many organisations and institutes to have directed-energy weapon capabilities. This KALI weapon is said to be India's top-secret weapon". It's not exactly like it, but the idea is similar. Working is somewhat the same. It is exactly like a small robot which moves like a military tank. It has PIR sensor which will detect the motions of objects such as living things. The set up is developed to attack enemies with the help of a laser.

II. METHDOLOGY

The system is designed to counter mini unmanned aerial vehicles. The drones are destroyed by Laser. In recent years, drones have undergone tremendous development. Due to the low price and ease of use, drones have been widely utilized in many application scenarios, which potentially pose great threats to public security and personal privacy. To mitigate these threats, it is necessary to deploy anti-drone systems in sensitive areas to detect, localize, and defend against the intruding drones.

Anti-Drone Systems are largely dependent on radio-frequency technology to detect and track Unmanned Aerial Vehicles (UAVs) such as drones. These devices can also block enemy drones, making it impossible for them to retrieve information. In our project there is a solution to these problems. As such drone attacks have increased in frequency, it is a watershed moment in asymmetric warfare and underlines the need for the armed forces to build capabilities to deter, detect and neutralize such aerial threats.

The most threatening aspect is the use of swarm drones to target specific critical installations – military or non-military assets. Our system is an anti-drone system, in which we are able to attack enemies with the help of a laser, in which we are able to defeat the plans of enemies. in proposed system there is a radar to detect the drone and there is motion sensor to detect living things such as animal, birds, human. Small drones have been used to attack state actors.

Counter-drone technology will have to be deployed subsequently as countermeasures to tackle this threat and to make sure we are able to detect this risk. Usage of drone technology by non-state actors represents a very major shift in the modus-operandi of terrorists. A new market of counter drone is constantly increasing given the rise of such threats. The proposed system shows the excellent sensitivity towards protecting critical infrastructure, events, and sensitive areas from unauthorized drone activity. Anti drone system is used to detect and intercept unwanted drone and unmanned aerial vehicles (UAVs).

A. Block Diagram

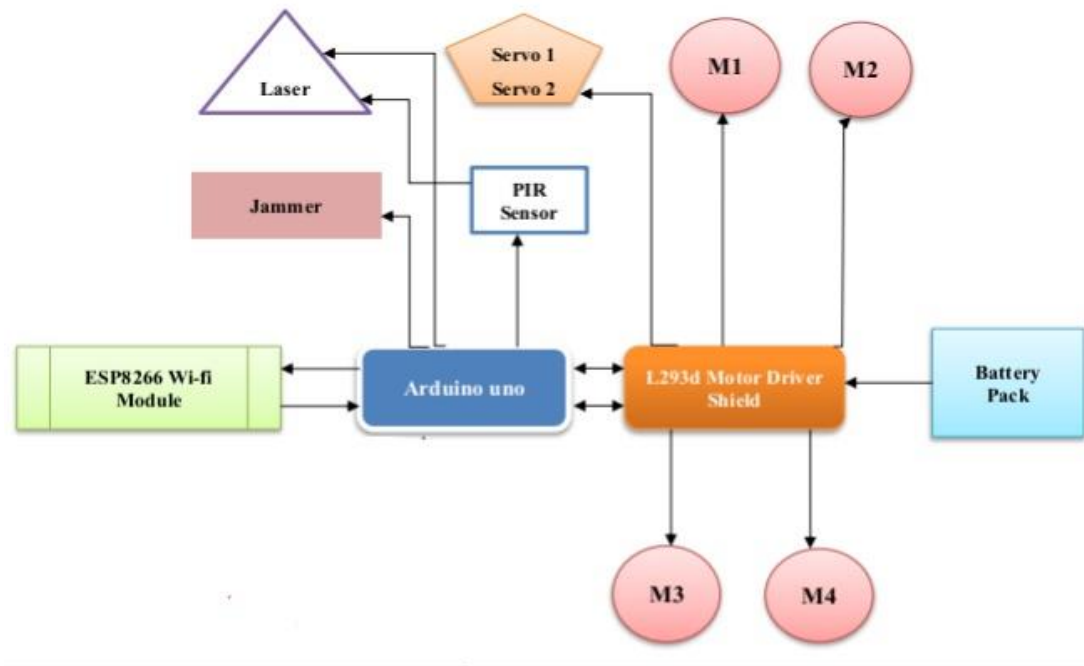


Fig. 1 Block diagram of anti-drone system robot

- Above block diagram shows the Anti drone system robot.
- Arduino uno is used for controller, wi - fi module for remote control, L293d motor driver shield for robot motor and servo motor control.
- 2000mw laser for drone hunting and pir sensor for human detection
- 433MHz jammer for drone signal jamming.
- Battery pack for power supply of all circuit.
- Pir sensor for human motion detection, laser diode for hunting the drone.
- Wi - fi module for remote control.

B. Objectives

Drones pose multiple risks which can be bucketed into broad three categories:

1. Privacy risk (Ex - Illegal ISR (Intelligence, Surveillance and Reconnaissance operations))
2. Penetration risk (Ex - Intelligence gathering)
3. Security Risk (Ex - Smuggling of weapons and contraband)

To mitigate the risk, a system like counter drone has three components meshed around as a system:

1. Detection & Identification
2. Tracking
3. Neutralisation

III. WORKING

Small drones have been used to attack state actors. Counter-drone technology will have to be deployed subsequently as countermeasures to tackle this threat and to make sure we are able to detect this risk. Usage of drone technology by non-state actors represents a very major shift in the modus-operandi of terrorists. A new market of counter drone is constantly increasing given the rise of such threats. The proposed system shows the excellent sensitivity towards protecting critical infrastructure, events, and sensitive areas from unauthorized drone activity. Anti drone system is used to detect and intercept unwanted drone and unmanned aerial vehicles (UAVs). Anti drone technology is deployed to protect areas such as airports, critical infrastructure, large public spaces such as stadiums, and military installations and battlefield sites. Technology plays an important role in warfare these days. Anti-Drone Systems are a part of this technology that is used to either defend or gather information. With the increase of unwanted rival activities and attacks, the need for protection also increases. Every nation needs intelligent technology that can identify and destroy aerial threats. Anti-Drone Systems have a significant capability to detect the target, obstruct their links and destroy their drones through their laser.

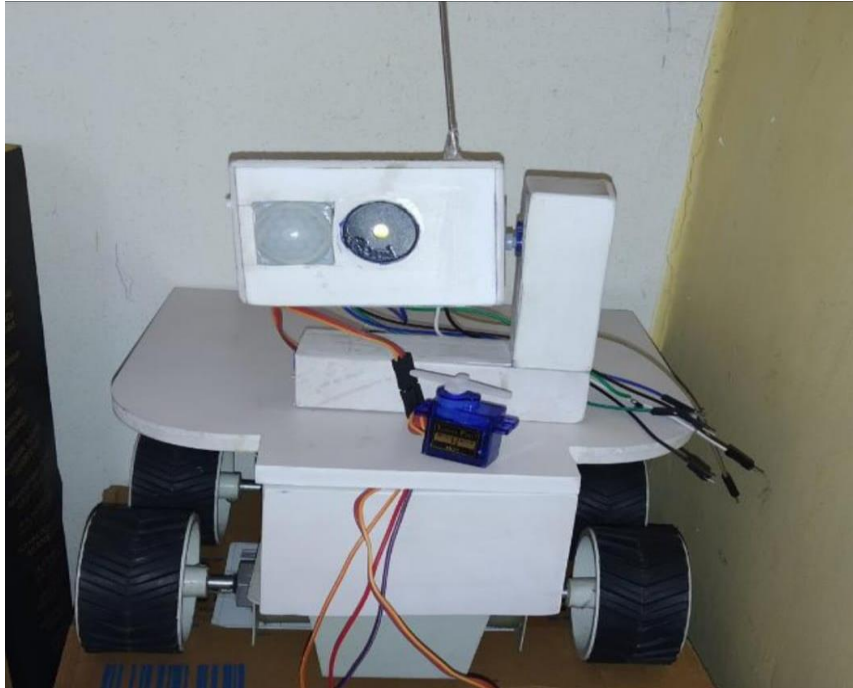


Fig. 2 Anti-Drone System Robot

IV. CONCLUSION

The Anti-Drone system robot project represents how necessary anti-drone is in today's dangerous situation. by the help of this weapon we are able to protect those around us. This system is especially suitable for large public areas such as airports, stadiums, parks etc. It has been designed to protect such a places. The project's emphasis on user interfaces, including touchscreens and mobile applications, not only facilitates a user-friendly experience but also serves as a vehicle for environmental and Military education, encouraging responsible citizens. With its robust data analytics capabilities, the Anti-drone system project empowers defence management authorities with insights into usage patterns, enabling data-driven decision-making and the optimization of various attacking strategies.

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