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KSCST Project synopsis

Project reference number: **46S_BE_2162**

Title of the Project: **DESIGN & IMPLEMENTATION OF SPY STONE IN DEFENCE SURVEILLANCE**

College name and Branch: **REVA UNIVERSITY, B. Tech in Electrical and Electronics Engineering**

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Keywords: **Spy, Camouflage, Surveillance, Communication, and Transmission System.**

Introduction/Background:

It is impossible to overstate the importance of surveillance technology in the defence industry because it gives vital intelligence about potential adversaries that might make or break an operation. Unfortunately, the exorbitant price of such technology prevents many developing nations from acquiring it. To fill this need, we created Spy Stone, a stone-shaped structure outfitted with a camera module and Bluetooth connectivity. Spy Stone is an effective yet reasonably priced solution. This technology is perfect for individuals looking for reasonably priced, efficient choices for precisely tracking targets while remaining mobile throughout deployments.

[1] Smart Spy Surveillance Robotic System

A. Arthi, G. Kalpana, M. Kavitha, Jaya Surya. "Smart Spy Surveillance Robotic System", IEEE Conference, ISSN: 2278-0181, ICONNECT - 2k18 Conference Proceedings

This device is a pyro-electric device that detects motion by measuring changes in the infrared levels emitted by surrounding objects. Here the essential components are RFID Reader, Spray Motor, Smoke sensor, and PIR sensors.

[2] Military area for security purposes

Moloo, 1ME Student, Deogiri Institute of Engineering & Management Studies, Aurangabad, Maharashtra, India. Electronics & Telecommunication Dept., Deogiri Institute of Engineering & Management Studies, e-ISSN: 2395-0056, p-ISSN: 2395-0072, Volume: 07 Issue: 01 | Jan 2020

These devices also come under the surveillance category. Here in this circuit, PIR sensors are used for an object within a 5 m range. Since it is a basic model. Here the components used are Raspberry pi-3, PIR sensors, camera, and supply.

Scope / Objectives of the project:

- Our device makes surveillance in the defence system better a•nd more efficient. In the military and defence sectors, there should be an enormous amount of money spent on surveillance devices. In the force, there is a clear and focused spy on their enemy all day long. But often, this method is not efficient and there should be a better alternative.

- Now there is the use of technology in every field and implementing the tech in the military is necessary. But now there is a huge demand for spying devices. These devices keep an eye on the enemy.Even these devices will check on the movements of the enemy force.
  continuously.

- Then the device will have accurate details about the enemy zone. Our equipment has the replicated structure of stone where the stone can move with wheels. This equipment is entirely used for surveillance and spying purposes.

METHODOLOGY:

The five phases of methodology are outlined below.

- Phase 1: Collection of Data: Lead broad examination on the utilization of secretive automated gadgets for military observation and distinguish the most reasonable parts and advancements for the proposed framework.

- Phase 2: framework necessities: The system requirements must be defined based on the proposed system's objectives. This includes figuring out what the system needs to do in terms of locomotion, hiding, remote control, communication, and surveillance capabilities.

- Phase 3: Development and design: Utilizing a six-wheeled rover bogie, an Arduino Uno, and a motor driver shield with either a Bluetooth or Wi-Fi module, design the system's locomotive section. Additionally, plan and develop the disguise structure that will hide the train area.

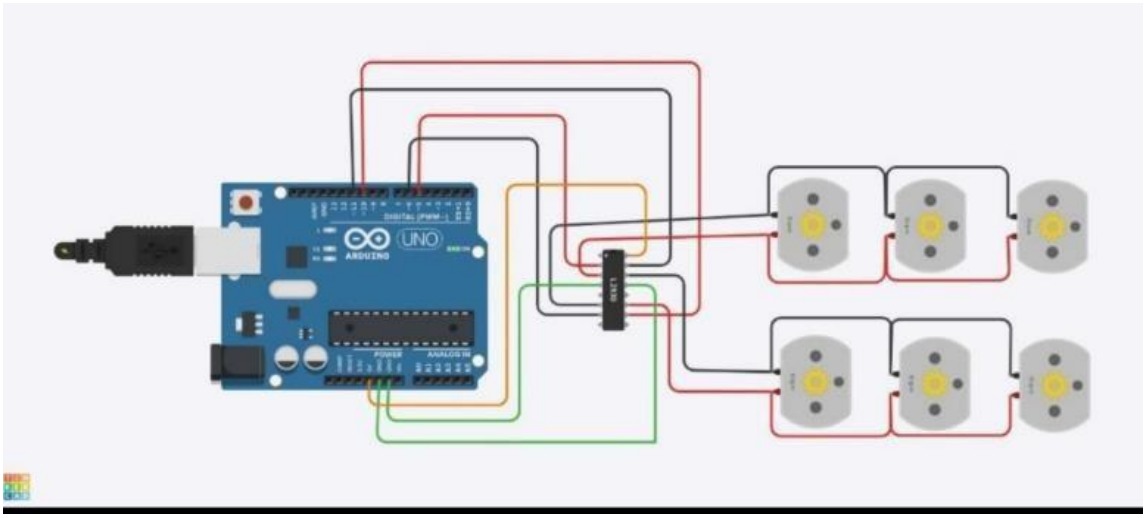
- Phase 4: Control and integration: To enable monitoring of activities by the adversary, connect the locomotive section to the camera and microphone module, as well as the communication and transmission system.

- Phase 5: Testing and Point of interaction: Test the framework to guarantee that it can really navigate lopsided territory, catch, and send excellent pictures and sound, and stay undetected by foes, an easy-to-use point of interaction is accommodated observing and controlling the government operative robot from the remote spot.

RESULTS:

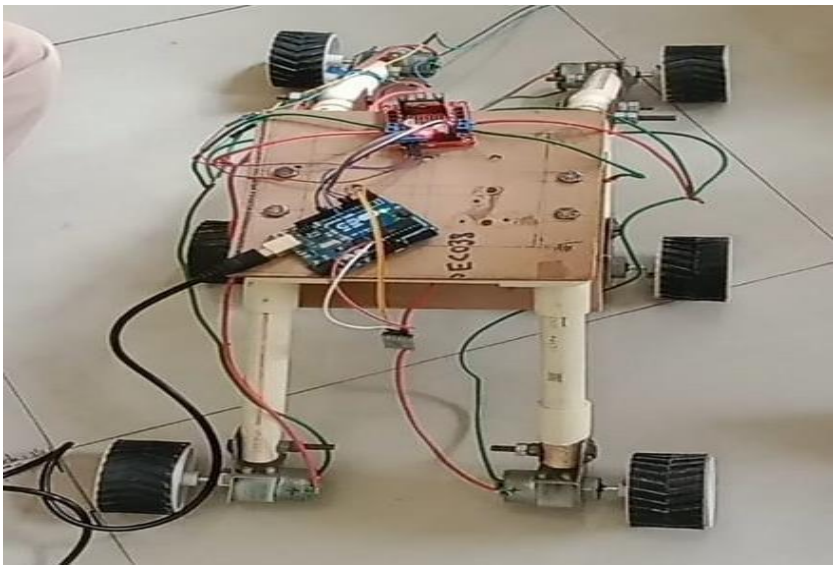
The project's primary objective is to offer surveillance in the defence sector. In the field of defence, keeping an eye on the enemy or foe and spying on them is one of the most important ways to track their movements and activities. Our goal is to create a spying surveillance robot with a disguised structure that looks like a rock and stone and cannot be seen. In this wayto lay out serious areas of strength for and against our foes, with the goalthat foes can't arrive at our mystery bases and army installations.

The Spy Stone is an undercover observation gadget intended to look like a stone or rock structure in army installations, determined to direct reconnaissance on foes and safeguard military faculty and resources. The gadget is made from two principal parts: the external design and the train segment.



CIRCUTARY SPECIFICATIONS THROUGH TINKER CAD

The external construction is intended to seem to be a stone or rock and is expected to mix in with the climate, making it hard for foes to distinguish or remember it as a reconnaissance gadget. The external design is made of lightweight materials to guarantee that it very well may be effortlessly shipped and conveyed. The design is furnished with a compartment to convey the train segment and different imaginative works are incorporated to make the gadget look more sensible.



The train segment is the core of the Government operative Stone and comprises of a six-wheeled wanderer bogie intended to navigate lopsided territory and increase the framework's practicality and adaptability. The train segment is fuelled by six DC engines with a speed of 60 RPM, which are constrained by an Arduino Uno microcontroller and an engine driver safeguard coordinated with either a Bluetooth or Wi-Fi module. The Arduino Uno is a basic yet strong microcontroller that is broadly utilized in Do-It-Yourself gadgets projects, and the engine driver safeguard is an electronic circuit that permits the microcontroller to control the speed and heading of the DC engines.

The train segment is covered inside the disguised stone or stone-like design, which gives assurance and further upgrades the gadget's capacityto mix in with the climate. The gadget is furnished with a camera and receiver module, which is remotely coordinated with a correspondence and transmission framework, taking into consideration observing of foe exercises and any dubious way of behaving that could represent a dangerto army installations.

The camera module utilized in the Government agent Stone is the Wi-Fi + Bluetooth module, which considers constant video real time and picture catch. The receiver module is utilized to catch sound data, which can be helpful for social affair knowledge.

Inner locomotive structure.

The train structure is achieved watchets meandered bogie and the front three-sided arrangement supports exploring over harsh landscapes. Furthermore, this plan can easily be versatile tsddo various ecological circumstances.

INNER LOCOMOTIVE STRUCTURE

Camouflaged outer structure.

The item's exterior design is disguised in a way that makes it harder for enemies to remember it and, potentially, diverts them, making it less likely that weaknesses will be discovered.

CAMOUFLAGED OUTER STRUCTURE

CONCLUSION:

Military reconnaissance can be handled in a novel and extraordinary way with the framework that has been proposed. By using sensible materials and development, the contraption is insightful and successfully open to countries with low financial plans. The device's design, which resembles a rock or stone structure, makes it useful for directing covert reconnaissance operations because it can blend in with the environment and remain undetected. The train section of the device, which has a six-wheeled wanderer bogie, guarantees that it can cross uneven terrain and can be used in a variety of ways. Considering remote checking of foe activities and any suspicious behaviour, the camera and mouthpiece module is remotely coordinated with a correspondence and transmission framework. Thedevice's remote control can be controlled using an Arduino Uno, an engine driver safeguard, and either a Bluetooth or Wi-Fi module. Overall,the "Spy Stone" project offers a capable, sensible, and effective choice rather than exorbitant perception gear at this point accessible.

REFERENCES:

[1]A. Arthi, G. Kalpana, M. Kavitha, Jaya Surya. “Smart Spy Surveillance Robotic System”, IEEE Conference, ISSN: 2278-0181, ICONNECT - 2k18 Conference Proceedings.

[2] Semtech C Moloo, 1ME Student, Deogiri Institute of Engineering & Management Studies, Aurangabad, Maharashtra, India 2Professor, Electronics & Telecommunication Dept., Deogiri Institute of Engineering & Management Studies, e-ISSN: 2395-0056, p-ISSN: 2395-0072, Volume: 07 Issue: 01 | Jan 2020.

[3] Spying Robots [ISSN 2278- 3075] Zhongyi Liu, Chongru Liu, Yi Ding, Gengyin Li has introduced the “Transient studies of power system” Technical committee.

[4] International Journal of Innovative Technology and Exploring Engineering (IJITEE)ISSN: 2278-3075,Volume-8, Issue-7C2, May 2019. Sarmad Hameed, Muhammad Hamza Khan, Naqi Jafri, Adeel Azfar Khan, Muhammad Bilal Taak.

[5] Mr.Chaitanya Vijaykumar Mahamuni P.G.Research Scholar (Fellow)Department of Electronics & Telecommunication EngineeringFr. Conceicao Rodrigues Institute of Technology, Vashi, Navi Mumbai, Maharashtra, India,https ://www.researchgate.net/publication/344904438.

[6] Virgil Claudiu Banu, Ilona Mădălina Costea, Florin Codrut Nemtanu and Iulian Bădescu.“Intelligent video surveillance system” 23rd international symposium for design and technology in electronic packaging (SIITME) IEEE 2017.

[7] Myrala Nalini*, G.Vijaya Kiran. “Automatic surveillance system using raspberry pi and arduino.” international journal of engineering sciences & research technology.” [Nalini* et al.,6(5): May, 2017].

[8] Rutuja. R. Bachhav, Priyanka. S. Bhavsar, Devyani. K. Dambhare, “Spy robot for video surveillance and metal detection.” international journal for research in applied science & engineering technology (IJRASET), Volume 6 Issue V, May 2018.

[9] Chinmaya Kaundanya, Omkar Pathak, Akash Nalawade, Sanket Parode, “Smart surveillance system using raspberry pi and face recognition”

International journal of advanced research in computer and communication engineering ISO 3297:2007 Certified Vol. 6, Issue 4, April 2017.

[10] Pankaj Singh, Prakher Nigam, Puru Dewan and Abhishek Singh ,“Design and implementation of a raspberry pi surveillance robot with pan tilt raspbian camera” international journal of nanotechnology and applications ISSN 0973-631X Volume 11,Number 1 (2017), pp. 69-73.