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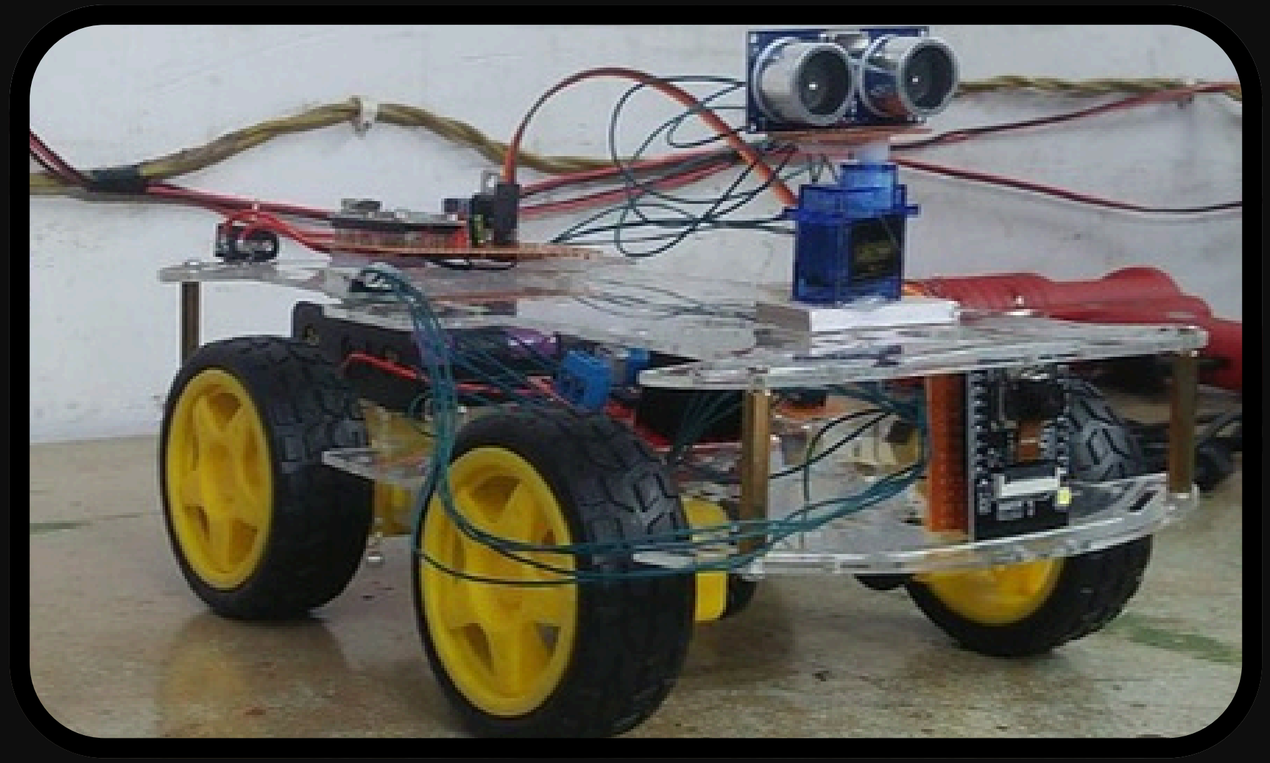
INTELLISCOUT VER.2

"Pioneering the Future of Intelligent Remote Surveillance"



NEXT CHAPTER WHICH SOLVES REAL WORLD PROBLEMS WHICH WE EVER SEE AND WE WORK ON THOSE PRINCIPLES WHICH ARE NECESSARY TO REVOLUTIONISE THE HUMAN WORLD ERA.

Dhruv Dhayal & Pratham Aggarwal

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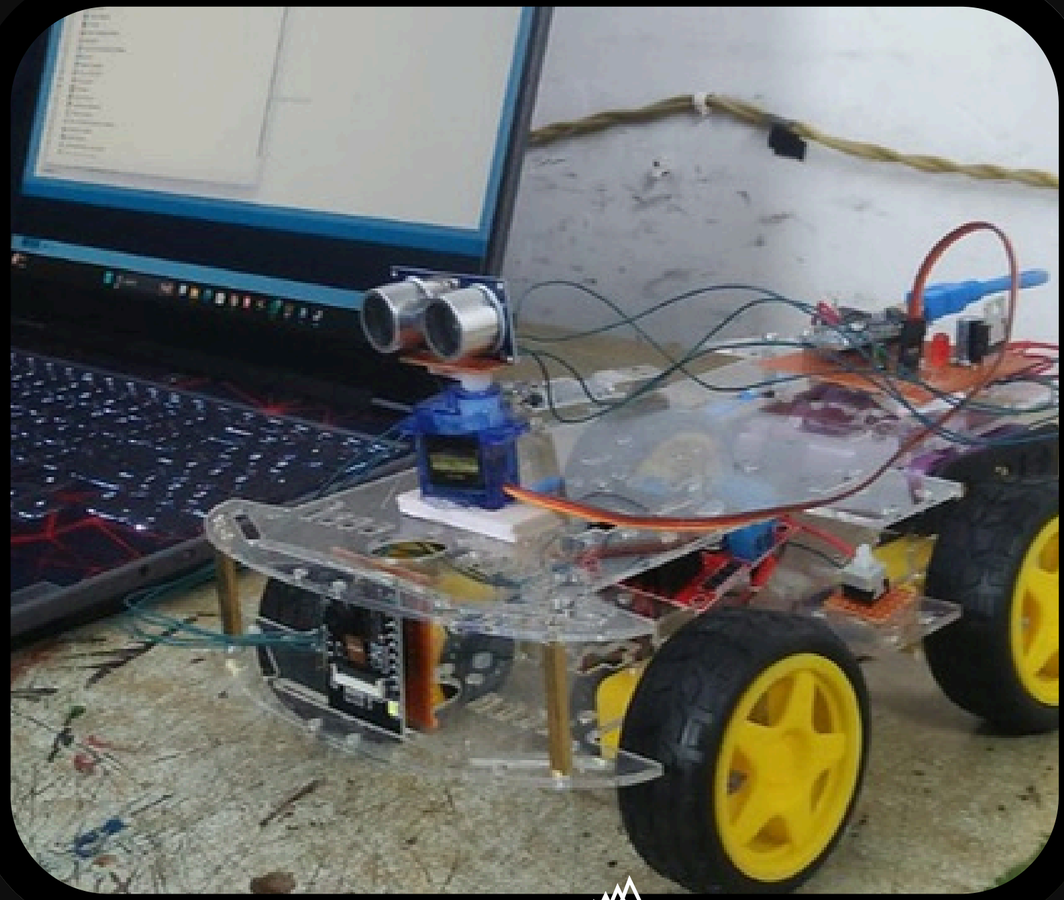
INTRODUCTION TO THIS ROVER

IThe surveillance robot described showcases a versatile and efficient design, making it suitable for a wide range of applications. Its ability to navigate unknown environments while providing a live camera feed is particularly beneficial for surveillance and security purposes. Additionally, features like remote object delivery, autonomous operation, and practical design elements.

The robot's compatibility with internet-connected devices for remote monitoring further increases its adaptability, making it a valuable tool for surveillance, logistics, healthcare, and exploration tasks.



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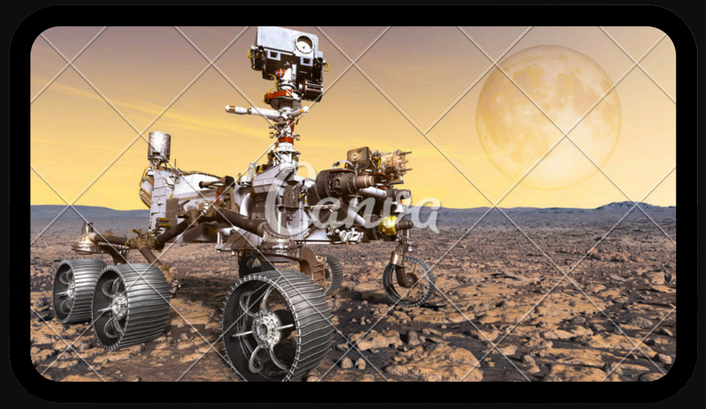
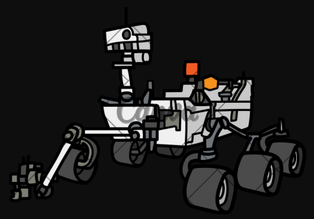
PROBLEMS AS WE NOTICE!



The primary problem we aim to solve is ensuring efficient monitoring, tracking, and object delivery in environments where human intervention is risky, challenging, or impossible. These areas often lack proper infrastructure, connectivity, or safety measures, making traditional surveillance and rescue methods ineffective.

- Non-Human Intervention Areas i.e (Sewers), Pipelines Leakage Monitoring..
- Military Zones
- Borewell Rescue Operations
- Coal Mines and Underground Sites



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AIM OF THIS ROVER

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The primary aim of this project is to develop an autonomous surveillance and rescue robot capable of operating efficiently in environments where human intervention is risky, challenging, or impossible. The goal is to ensure real-time monitoring, object delivery, and rescue operations in hazardous conditions without relying on constant human control or internet connectivity.

- Autonomous Navigation
- Live Camera Feed & Tracking
- Local Network & Offline Capabilities
- Compact Design for Tight Spaces
- Servo-Controlled Mechanisms
- Durable & Adaptable Hardware

Works on both EMF Signal or Wi-Fi depends on needs!

Max. Range : 40 m

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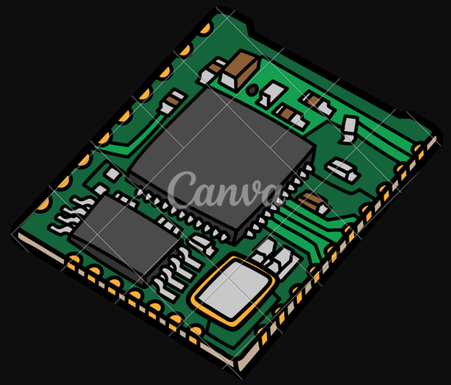
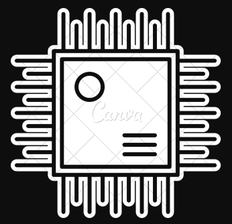
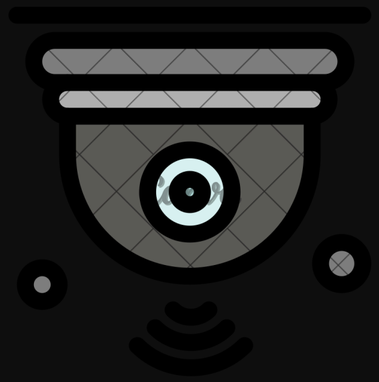
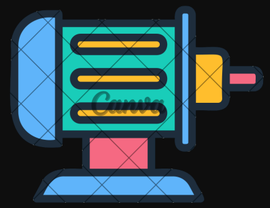
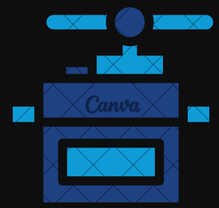
TECHNOLOGY STACK USED











- ESP-32 Camera Module
- L293N Motor Driver IC
- SG-90 Servo Motor
- Micro SD card
- Antenna
- Rechargeable Batteries (12V)
- 100Rpm Motors
- Mountain Wheels
- Switch
- Jumper wire and connecting wire

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BLOCK DIAGRAM OF THE CIRCUIT

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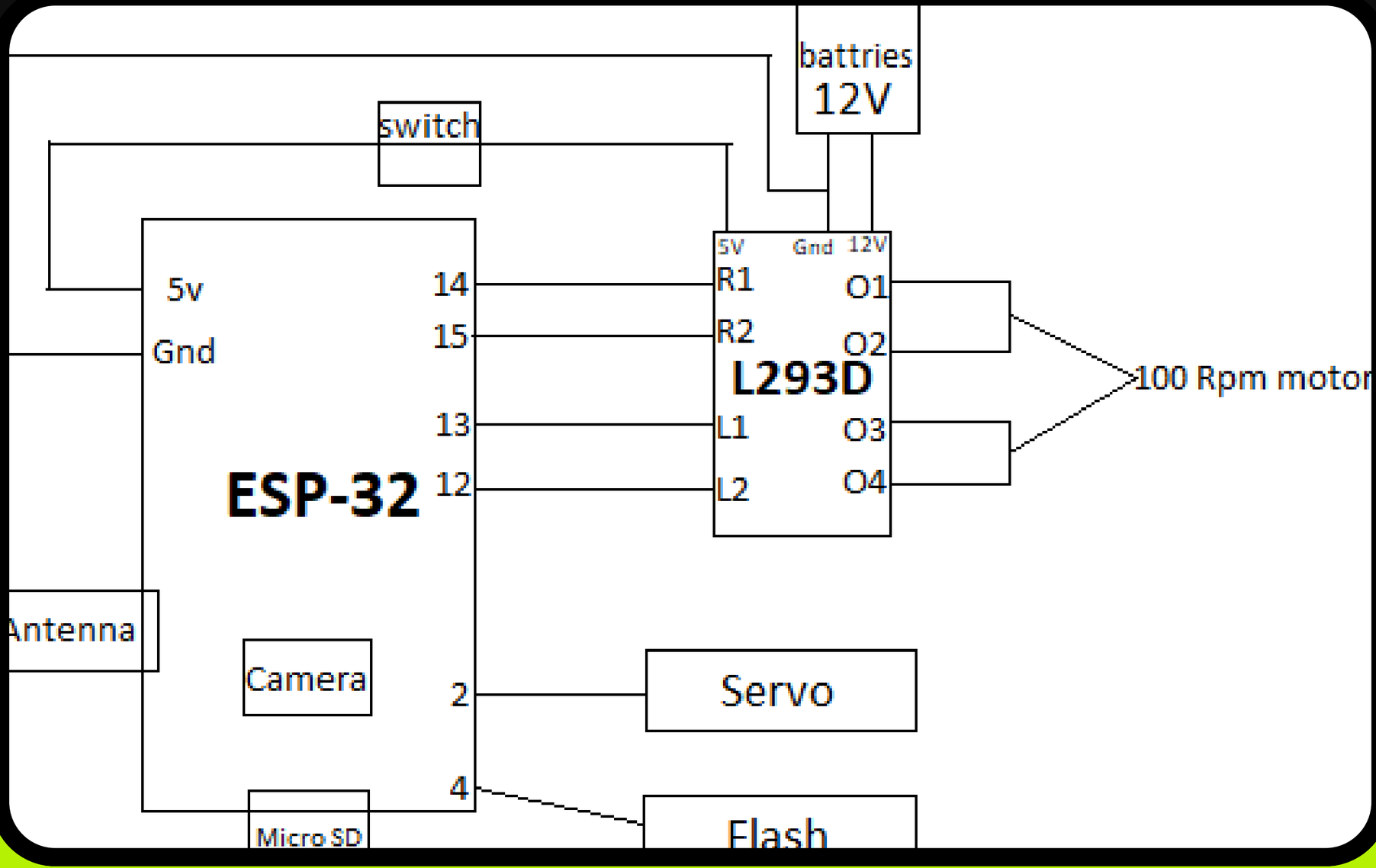
Fig1: Block Diagram



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SYSTEM DESIGN

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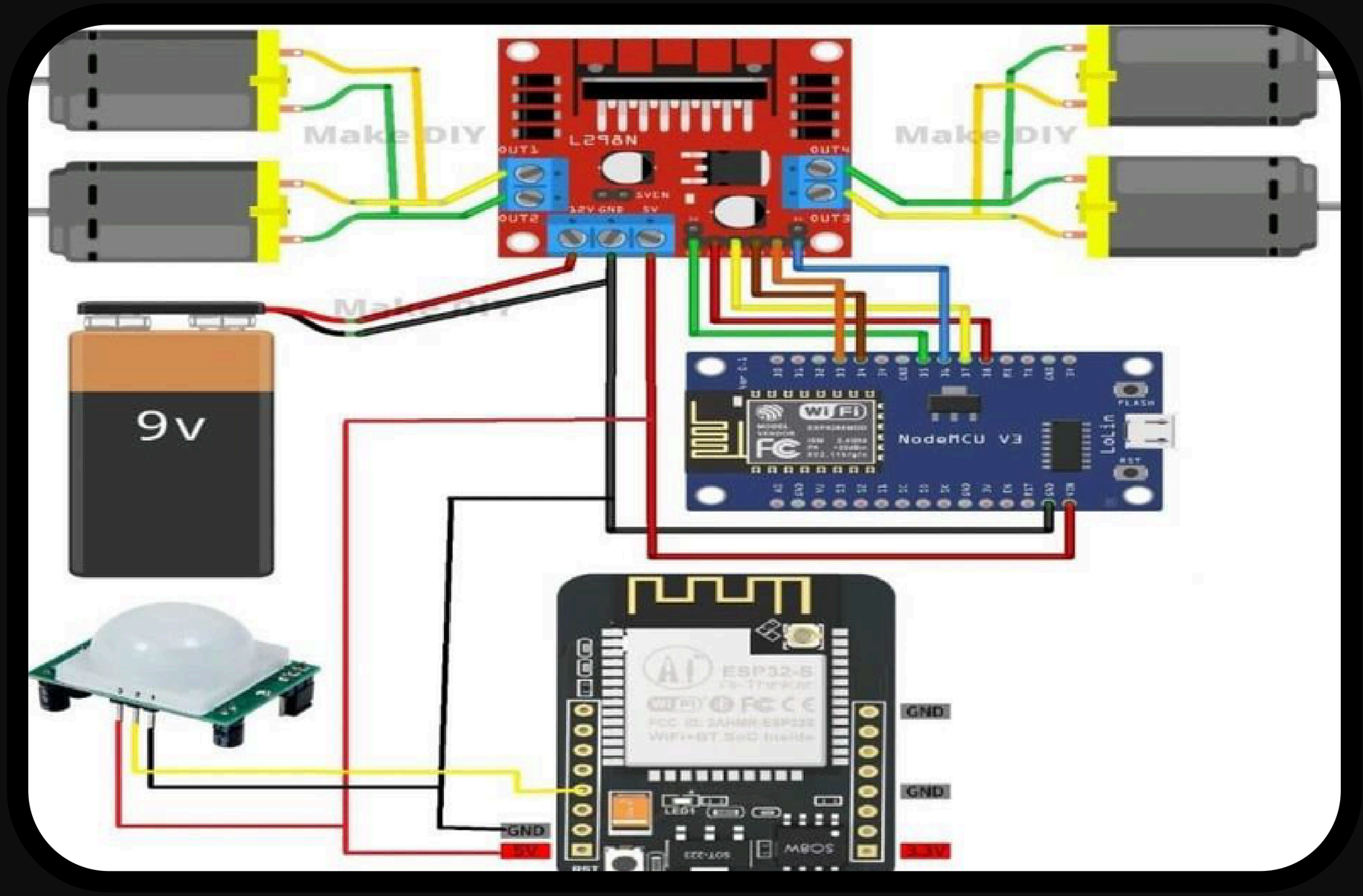

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CONNECTIONS

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From ESP-32 to L293N Motor Driver

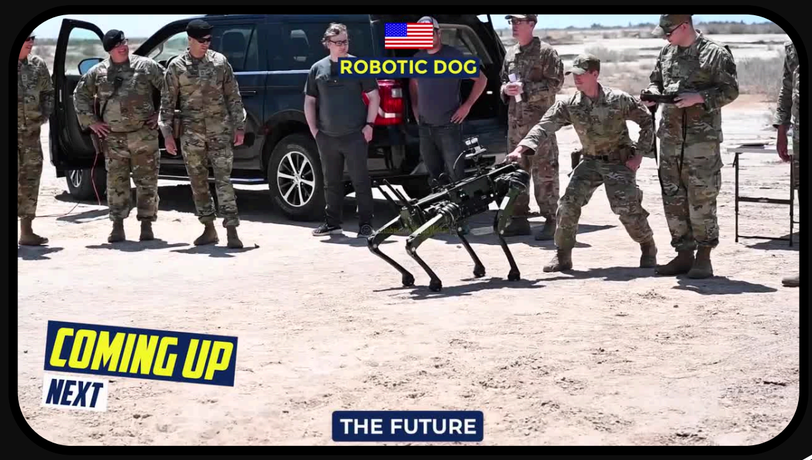
- Pin 14 – R1
- Pin 15 – R2
- Pin 13 – L1
- Pin 12 – L2
- 5V -- 5V
- Grd -- Grd

From L293N Motor Driver to Motors

- O1 – Motor 1(side 1)
- O2 – Motor 1(side 2)
- O3 – Motor 2(side 1)
- O4 – Motor 2(side 2)

From ESP-32 to Other Components:

- Pin 2 – Servo Motor
- Pin 4 – Flash
- Memory Card in slot holder
- Camera in-built
- Antenna in extension



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WORKFLOW

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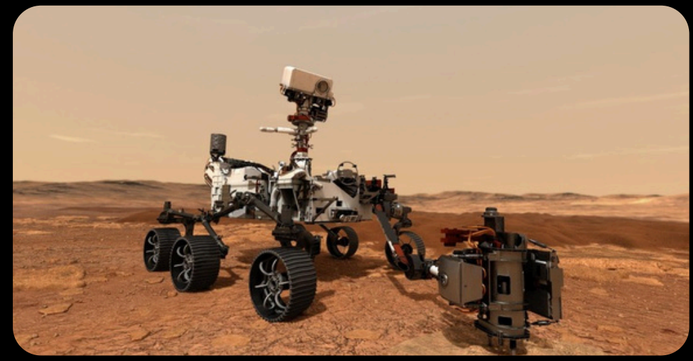
The goal is to ensure real-time monitoring, object delivery, and rescue operations in areas like military zones, borewells, coal mines, and space missions, even without internet connectivity.

We aim to achieve this through AI-based autonomous navigation, live camera feed with tracking, offline communication modules, and a compact, durable design for tight spaces. Features like servo-controlled mechanisms and built-in flash enhance its functionality in low-light or critical situations. This versatile robot will improve safety, efficiency, and adaptability in high-risk environments.



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FUTURE SCOPE:

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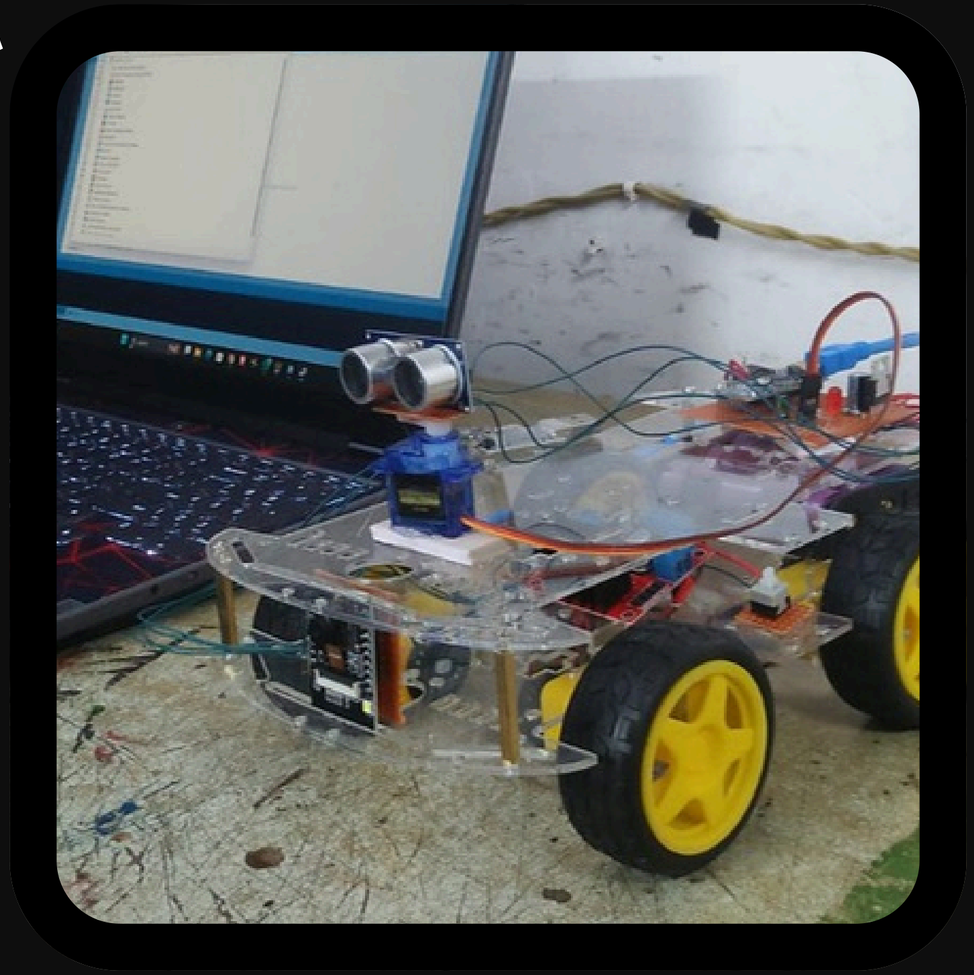

- Vision Belt for the Blind
- Environmental Monitoring
- Service Robots
- FireFighting Robots
- Wireless Technology Integration
- Pick and Place Robot


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LIVE DEMO

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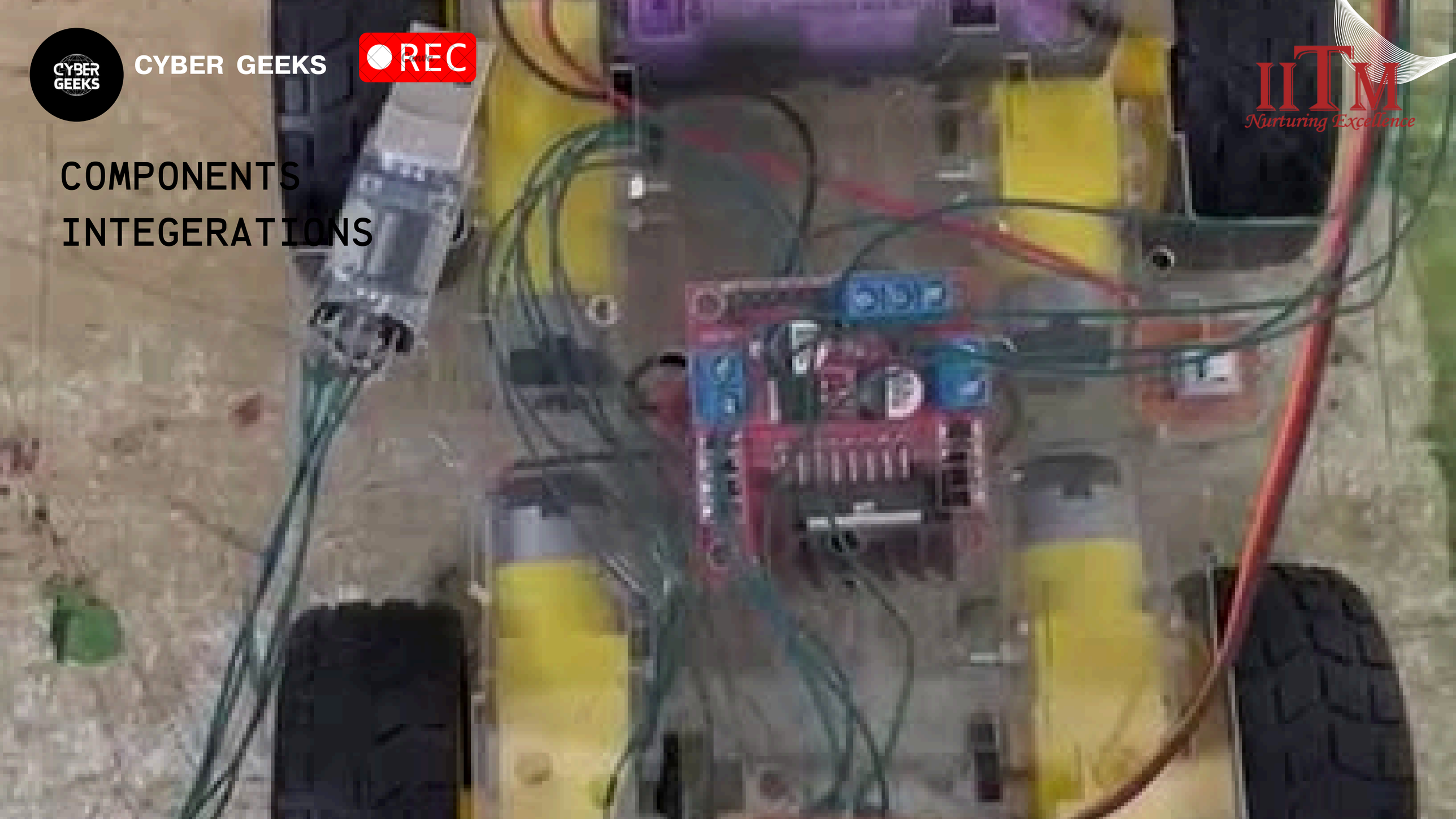
COMPONENTS INTEGERATIONS



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RESULTS OBTAINED

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We live in the era of robotics, where different types of robots are part of our daily lives.

- This project, "ESP-32 Based Surveillance Robot for Military Applications" uses an ESP-32 microcontroller, a camera for live streaming, and a motor shield driver to control DC motors for the robot's movement.
- The robot's accuracy is influenced by factors like the environment, number of obstacles, and the type/shape of obstacles (designed mainly for uniform shapes).
- The sensors play a critical role, as the robot's performance and accuracy heavily depend on the nature and precision of the sensors used.

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REFERENCES

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1

- F. Tang, Y. Ying, J. Wang and Q. Peng, "A novel texture synthesis based algorithm for object removal in photographs", . LNCS, vol. 3321, ASIAN2004 ASIAN2004 pp. 248-258.
- Haritaoglu, D. Harwood and L.S. Davis, "W4: “Real-Time Surveillance of People and their Activities", IEEE Transactions on Pattern Analysis and Machine Intelligence, 2020.vol. 22, pp. 809-830.
- J. Schiff, M. Meingast, D.K. Mulligan, S. Sastry and K Goldberg, "Respectful cameras: Detecting visual markers in real-time to address privacy concerns", Protecting Privacy in Video Surveillance, 2019, pp. 65-89.
- ChatGPT (OPEN AI) to ask about that it can possible to overcome this type of problems!


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struct group_info *group_info;
int nblocks;
int i;
/* Make sure we
nblocks = nbloc
group_info = km
if (!group_info)
return NULL;
group_info->nblocks = nblocks;
atomic_set(&group_info->usage, 1);
else {
AMA
QUESTIONS PLZ ASK?
Because we find loop holes/faults and we work on it! Learning and
Correct the Mistake is much much more better than failure at last!

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Dhruv Dhayal
&
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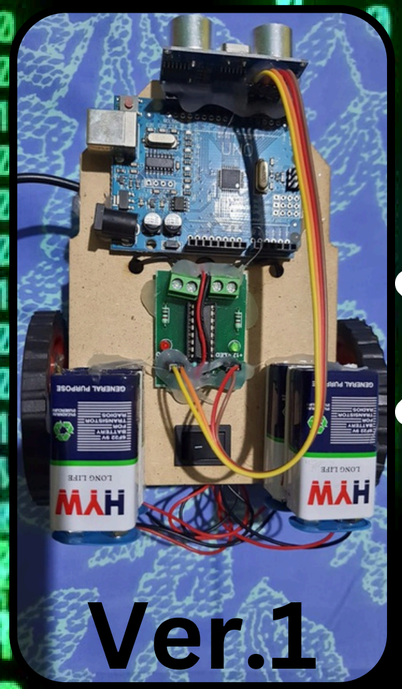

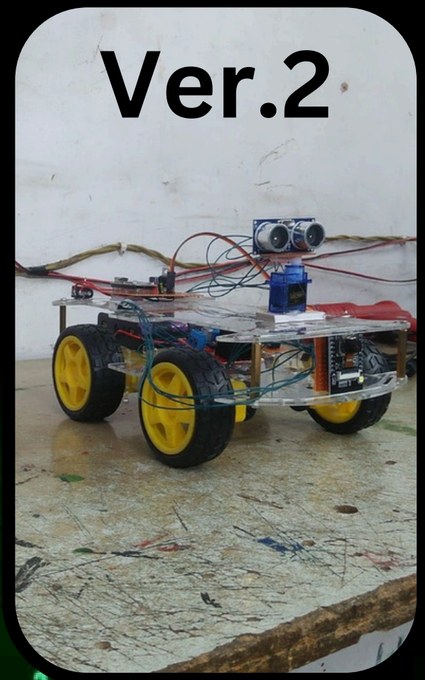

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