Unmanned Military Electric Vehicle with Emergency Breaking System.

About This Project:

The unmanned robot has 4 major parts and they are: 1) the ultrasonic sonar sensor 2) servo motor 3) NodeMCU 4) ESP-32 CAM. The Arduino Nano and the NodeMCU take power from a 6V rechargeable battery to run.

The ultrasonic sensor helps the robot to move on its own. The sonar sensor monitors its surroundings by the principle of sound reflection. The Ultrasonic transmitter transmits an ultrasonic wave, this wave travels in air and when it gets objected by any material it gets reflected back toward the sensor this reflected wave is observed by the Ultrasonic receiver module. This how it knows what is surrounding it. This information is constantly sent to the Arduino for evaluation and for commanding the motor driver IC to run the DC motors accordingly.

If we want to control the robot virtually then we can do that using the NodeMCU and Blynk app. The NodeMCU and the Blynk app, both are connected to a common server and whenever the user using the Blynk app commands the robot to move in a certain direction, the app sends that information via the server to the NodeMCU and the microcontroller then passes the information to the motor driver IC to operate the 4 DC motors accordingly.

The ESP-32 CAM is mounted on the bot for capturing images and the user can command the ESP-32 CAM to take photos and send them over, these images can be observed using the Blynk app as well by the user.

The servo motor is used in our prototype to show a gun firing mechanism.

Block Diagram:

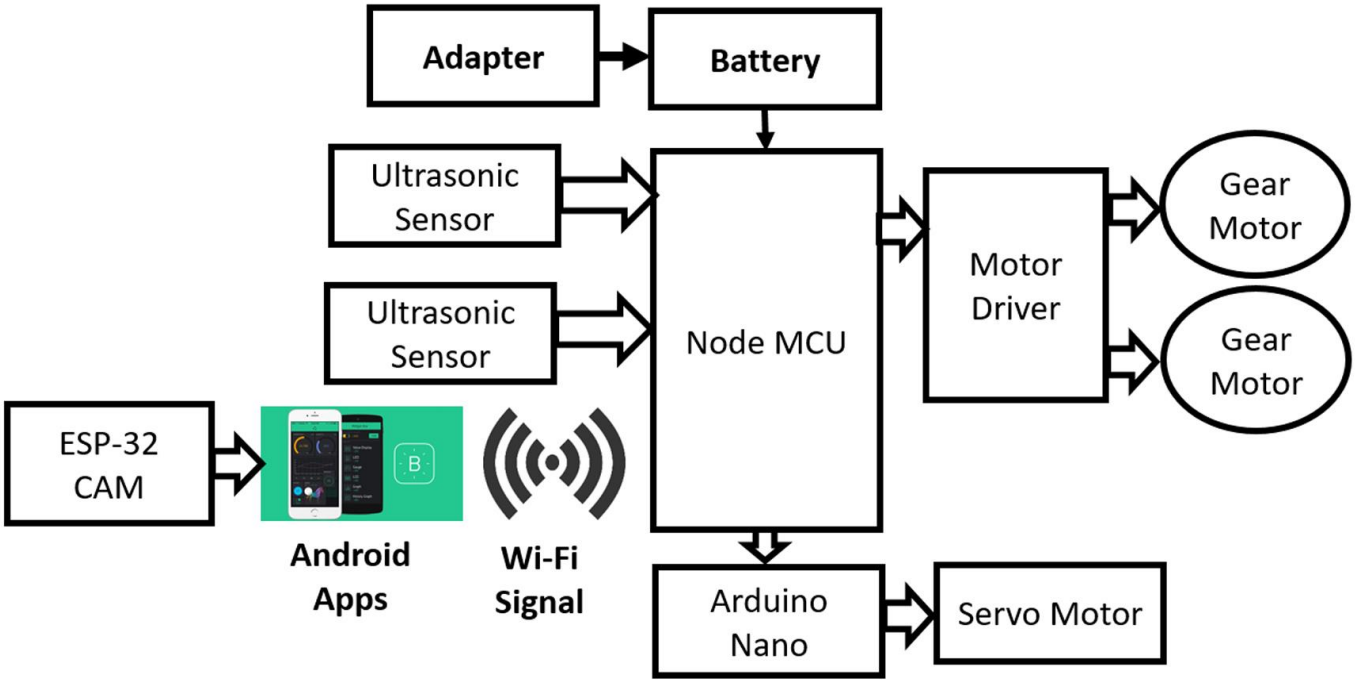

Figure: Block Diagram of Unmanned Military Electric Vehicle with Emergency Breaking System.

Required Instrument:

- Rechargeable Battery
- Arduino Nano
- NodeMCU
- ESP-32 CAM
- Ultrasonic Sensor
- Servo Motor
- Transistor BC547
- Motor Driver IC (L293D)
- Voltage Regulator 7805 etc.

Advantages:

There are many advantages of our project because of its accuracy. Some of the advantages are pointed out below:

- Cost effective, compact, small and user-friendly
- Low maintenance required
- Has internet access so can be controlled from anywhere
- Ensures safety for the task force
- Requires no skill at all to operate the thing
- The project is compact so takes up less space
- The products used in our project development are easy to find in the market so maintenance is not a big concern

N.B: *Any modification of this project can be done as per your requirement. We will make the project according to your needs. Contact us with your any innovative engineering projects idea. We will help you to implement your project.*