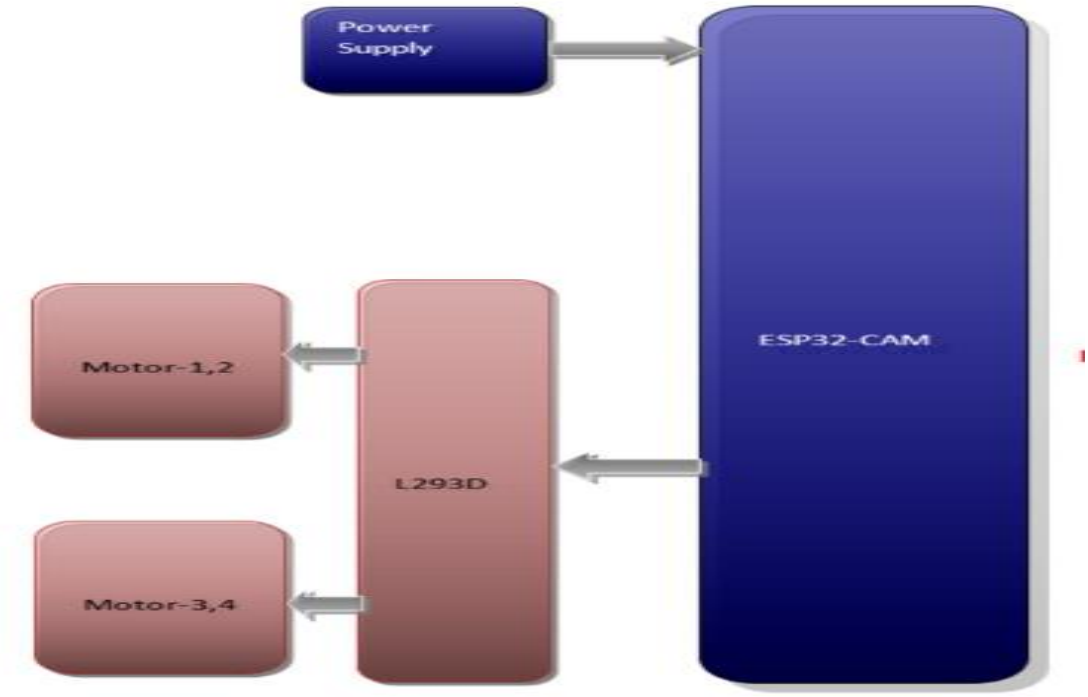
COMPONENT:

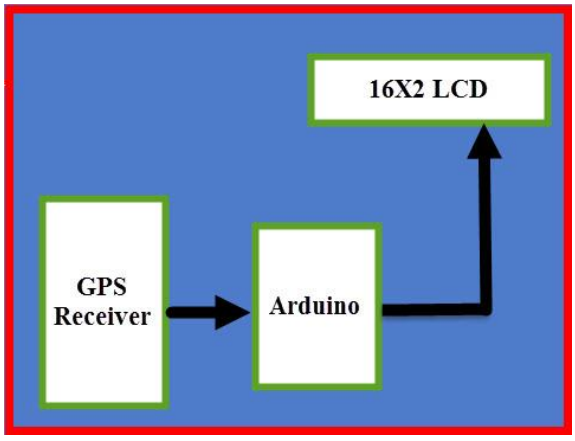
1. ESP32 cam module
2. L298N Motor Driver
3. Global Positioning System (GPS) Module
4. Metal Sensor
5. LCD Display 16*2
6. Power
7. Connecting wires

BLOCK DIAGRAM:

1) GPS module system



2) Surveillance robot using ESP32 cam module



CONNECTION:

1) Connect L298 Motor Driver to DC motor:

L298 Motor Driver	DC motor	
OUT 1	Positive terminal	DC motor 1 & 2
OUT2	Negative terminal	
OUT3	Positive terminal	DC motor 3 & 4
OUT4	Negative terminal	

Notes: We will connect the motors in criss cross pattern. This is because we have to make the car in such a way that two side motor rotates in same direction in order to go Forward Backward and other known directions

2) Connect L298 Motor Driver to ESP32 Cam module:

ESP32 Cam module	L298 Motor Driver
IO12	ENA
IO13	IN1
IO15	IN2
IO14	IN3
IO2	IN4
IO12	ENB
GND	GND
VCC=5V	VCC=12V

3) Connect ESP32 Cam Module to Arduino UNO:

ESP32 Cam Module	Arduino UNO
IO3 / U0RXD	D0
IO1 / U0TXD	D1
GND	GND
VCC	VCC

4) Connect GPS Module to Arduino UNO:

GPS Module	Arduino UNO
Tx	D8
Rx	D9
VCC	VCC
GND	GND

5) Connect LCD 16*2 to Arduino UNO:

I. Control pin RS, RW and En are directly connected to Arduino uno pin 12, GND and 11 respectively

II. Data pin D4 to D7 is connected to pins 5, 4, 3 and 2 respectively of Arduino uno

2) Connect DHT11 to ESP32 Cam module:

DHT11	ESP32 Cam module
DHT11 Data	IO4
GND	GND
VCC	VCC

SOFTWARE UESD:

I. Arduino IDE