***OBSTACLE AVOIDING ROBOT***

PROBLEM STATEMENT AND OBJECTIVE :

Whenever me and my family go for vacations, I used to get worried about my plants because they need water on regular basis. I gone through several options to solve this problem as plants need water according to the moisture level of soil. So I have made **Automatic Plant Watering System Using Arduino UNO**.

In this system, soil moisture sensor senses the moisture level of the soil. If soil will get dry then sensor senses low moisture level and automatically switches on the water pump to supply water to the plant. As plant get sufficient water and soil get wet then sensor senses enough moisture in soil. After which the water pump will automatically get stopped.

I have used a self made water pump in this system using 5 volt DC motor. I could use 12 volt water pump in the system but to operate this, it will require a relay module. So, to reduce all these hardware complexity, I made DC motor based water pump using diode, transistor and registers combined circuit which operates DC motor according to the Arduino code.

INTRODUCTION An obstacle-avoiding robot is an autonomous machine designed to navigate through its environment while avoiding obstacles in its path.Obstacle-avoiding robots are vital in situations where human intervention is limited, risky, or impossible. By autonomously navigating and avoiding obstacles, these robots contribute to increased efficiency, safety, and productivity in various domains..

APPARATUS :

1. ARDUINO UNO

It is a micro controller board based on the ATmega328p. It has 14 digital input/output pins of which 6 can be used as PWM outputs,6 analog inputs,a USB connection,a power jacket,reset button.



2. DC MOTORS 

A direct current motor is a type of electric machine that converts electrical energy into mechanical energy.

3.MOTOR SHIELD

The L298N motor driver which allows speed and direction control of two DC motors at the same time the module can drive DC motors that have voltages between 5 and 35v,with a peak current up to 2A. 

4.ESP32 CAMERA ESP32-CAM can be widely used in various IoT applications. It is suitable for home smart devices, industrial wireless control, wireless monitoring, QR wireless identification, wireless positioning system signals and other IoT applications. It is an ideal solution for IoT applications. 



**CONCLUSION**

This system can work automatically and there is no need for interference. We are sharing the detailed working of this project.