CA LAB Task 1

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Q: Write any three circuits and its procedure which you can make using arduino UNO.

**Automated Plant Watering System:**

**Components:**

Arduino Board (e.g., Arduino Uno)

Soil moisture sensor

Water pump

Relay module

Tubing and water reservoir

**Description:**

This project involves creating a system that monitors soil moisture using the soil moisture sensor. When the soil moisture drops below a certain threshold, the Arduino activates the water pump via the relay module to water the plants. This automated system ensures that your plants receive water when needed.

**Motion-Activated Alarm:**

**Components:**

Arduino Board (e.g., Arduino Nano)

PIR (Passive Infrared) Motion Sensor

Piezo Buzzer

LED (optional)

**Description:**

This project creates a motion-activated alarm system. The PIR sensor detects motion, and when motion is detected, the Arduino triggers the piezo buzzer to sound an alarm. You can also incorporate an LED for visual indication. It's a simple yet effective security-related project.

**Arduino-powered Robot Car:**

**Components:**

Arduino Board (e.g., Arduino Mega)

Motor driver module (L298N, for example)

DC motors and wheels

Chassis and frame for the robot

Ultrasonic distance sensor

Bluetooth module (HC-05 or HC-06)

**Description:**

Build a small robot car that can be controlled via a Bluetooth-enabled device, such as a smartphone. The ultrasonic sensor helps the robot avoid obstacles by detecting distances, and the Arduino processes the sensor data to control the motors. Use a motor driver module to control the direction and speed of the motors. This project is a great introduction to robotics and sensor integration.