**SHRI DATTA MEGHE POLYTECHNIC, NAGPUR**

**Department of Electronics and Communication Engineering.**

**Session 2017-18**

**PROJECT SYNOPSIS**

**On**

**SMART IRRIGATION SYSTEM USING ARDUINO**

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**INTRODUCTION:-**

Here we are making **Automatic Plant Irrigation System using Arduino**, which automatically provides water to the plants and keep you updated by sending message to your cell phone.

In this Plant Watering System, Soil Moisture sensor checks the moisture level in the soil and if the moisture level is low the Arduino switches on the water pump to provide water to the plant. Water pump gets automatically off when system finds enough moisture in the soil. Whenever the system switched on or off the pump, a message is sent to the user via GSM Module, updating the status of water pump and soil moisture. This system is completely automated and there is no need for any human intervention.

#### BLOCK DIAGRAM:-

#### arduino-based-automatic-plant-irrigation-system-Block-Diagram

#### BRIEF WORKING OF PROJECT:-

* The soil moisture sensor is inserted in the soil. Depending on the quality of the sensor, it must be inserted near the roots of the plant. The soil moisture sensor measures the conductivity of the soil.
* Wet soil will be more conductive than dry soil. The soil moisture sensor module has a comparator in it.
* The voltage from the prongs and the predefined voltage are compared and the output of the comparator is high only when the soil condition is dry.
* This output from the soil moisture sensor is given to the digital pin (Pin 7 – D7) of Arduino. The Arduino continuously monitors the digital pin.
* When the moisture in the soil is above the threshold, Arduino will display a message on the LCD mentioning the same and the motor is off.
* When the output from the soil moisture sensor is high i.e. the moisture of the soil is less. This will trigger the arduino and displays an appropriate message on the LCD and the output of the arduino, which is connected to the base of the transistor, is high.
* When the transistor is turned on, the relay coil gets energized and turns on the motor. The LED is also turned on and acts as an indicator.
* When the moisture of the soil reaches the threshold value, the output of the soil moisture sensor is low and the motor is turned off.

**TOOLS / SOFTWARE REQUIRED:**

* Micro-controller (Atmega 328)
* GSM Module
* Soil Moisture Sensor
* Arduino IDE
* Blynk Application
* Submersible Water Pump

**APPLICATIONS:-**

* The project is intended for small gardens and residential environment. By using advanced soil moisture sensor, the same circuit can be expanded to large agricultural fields.

**ADVANTAGES:-**

* Simple and easy to install and configure.
* Saving energy and resources, so that it can be utilized in proper way and amount.
* Minimizes water waste and improves plant growth.
* Complete elimination of manpower.
* Motors can be automated easily by using controllers and no need of labour to turn motor ON and OFF.

**REFERENCES:-**

* [www.electronicshub.org](http://www.electronicshub.org)
* www.nevonprojects.com
* www.circuitdigest.com

Date Signature of Guide

(Name of Guide)

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