SMART PLANT

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Smart Plant project is for automated growing of plants at home conditions using soil moisture sensor for monitoring, water pump for watering when needed, LED for providing the needed lightning for the plant and buttons and potentiometers for configuring the moisture level and lightning.

WATERING:

The system will be watering bit by bit with purpose for even humidity, giving the soil time for absorbing and preventing for over flooding. Also, there will be an option for regulation of the plant's soil moisture level according to plant's preferences.

The straight case for watering will be:

1. The system reads the soil moisture sensor.
2. If the moisture is low
    - 2.1. Activate watering loop
    - 2.2. Water for 5 seconds
    - 2.3. Read moisture sensor
    - 2.4. If the moisture is low -> 2.2
    - 2.5. Else break the loop
3. If the moisture is good -> go to 2

LIGHTNING:

The system will have LED lamp with cooling system which will be turned on and off at specific time. For example: from 06:00AM to 18:00PM or from 08:00AM to 12:00PM. The options will be available for configuration with buttons and potentiometers.

UI DASHBOARD:

It will be displaying graphics for:

1. Soil moisture
2. Watering by time
3. Lightning by time

And controls for configuring the system.

DESCRIPTION OF THE AGENT SYSTEM

Agent Type	Percepts	Actions	Goals	Environment
Smart plant system	Too dry or wet spoil, low lightning	Watering with water pump and lightning	Healthy plant	Room and plant

TECHNOLOGIES FOR IMPLEMENTATION:

1. Node-Red

   It is a programming tool for wiring together hardware devices, APIs and online

services in new and interesting ways. It provides a browser-based editor that makes it easy to wire together flows using the wide range of nodes in the palette that can be deployed to its runtime in a single-click.

Source: https://nodered.org/

HARDWARE COMPONENTS:

1. Raspberry Pi 2
2. Arduino Duemilanove
3. Itead Moisture Sensor
4. Mini water pump
5. LED lamp
6. Relay for the lamp
7. Potentiometers
8. Button
9. Kalanchoe (test subject)