

Smart Pot Automatic Plant Watering System

General Requirements

Sensing:

1. The Smart Pot shall be capable of sensing the moisture of soil with probes that can be inserted into soil
2. The Smart Pot shall be capable of sensing the ambient air temperature
3. The Smart Pot shall be capable of sensing the water level of the reservoir

Watering:

1. The Smart Pot shall contain a submersible pump that can be moved into any water reservoir
2. The Smart Pot shall transport water from the reservoir to the plant using a pump and plastic tubing
3. The Smart Pot shall initiate watering when the soil moisture reaches a threshold
4. The Smart Pot shall allow the user to select the watering frequency (at which soil moisture levels the watering should be activated)
5. The Smart Pot shall allow the user to manually activate the pump

User Interfaces

Display System:

1. The Smart Pot shall display the ambient air temperature and soil moisture level on a display
2. The Smart Pot shall update the display at least once per minute
3. The Smart Pot shall display a message when the water level has dropped below a threshold to remind the user to refill the reservoir
4. The Smart Pot shall provide an indication of how often the plant will be watered

User Interactions:

1. The Smart Pot shall provide an interface to set the threshold for watering, allow manual watering, and change the temperature units

Communications

WiFi:

1. The Smart Pot shall be capable of functioning as a WiFi server on 802.11 b/g/n wireless networks
2. The Smart Pot shall publish a stream of the soil moisture and air temperature to a HTML webpage for viewing by a user
3. The Smart Pot shall allow the user to log the data via the serial interface

Power

1. The Smart Pot shall be powered by a 5V DC barrel jack supplied by an AC power adapter
2. The AC power adapter shall provide a voltage of 5 V DC using a mains voltage of 100 VAC to 240 VAC with line frequency of 50-60 Hz

Environmental

1. The Smart Pot shall operate at temperatures of 0-40°C
2. The Smart Pot electronics shall be ingress protected to a level of IP24