iPlant: Automatic Plant System

SPCL-2012 - Project Proposal

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BACKGROUND AND MOTIVATION

For years we have enjoyed the beauty of green plants. Yet people often struggle to keep their plants alive and fit. Plants require much attention and regular watering & sunlight. Something that is easily forgotten in daily activities. (reference)

However plants are important for a healthy environment while they contribute to clean and natural air with the production of oxygen. They help convert CO2 gasses and neutralize toxins in the air.

Our automatic plant system: iPlant will help attend plant(s) and provides users with information on temperature, humidity and general air quality near their plant(s). Using iPlant people can engage in having many different plants with absolute minimum effort.

Furthermore users can combine multiple plants and monitor an entire villa or i.e. an office location with plants in different rooms connected to a local WiFi network. This ensure a natural work environment and provide all the information needed accessible from a simple web interface.

IDEA

The main idea is to create a system that is capable of both watering and illuminate plant(s). The system should be intelligent and capable of notifying the owner of the plant(s) with status information obtained trough sensors placed directly within the plant.

Multiple plants could be connected to a local network using WiFi and monitored from a web interface.

Potting a plant combined with our solution provides the plant with the necessary attention for it to sustain on its own for longer periods, even when located with no access to sunlight. Our solution will automatically water the plant regularly - keeping a fixed level of humidity in the soil.

UbiComp '12, Sep 5-Sep 8, 2012, Pittsburgh, USA.

SCENARIO

A family leave their home for two weeks of much needed vacation. During their stay their plants suffers from their absence. In one room curtains closed prevents plants from sufficient sunlight - they stops growing and starts withering.

In another room plants are over-watered in the hope that they will survive during the absence. They unfortunately drown from the massive watering.

In a third room the family did not water their plants sufficiently and wither from regular exposure to sunlight without moist soil to drain from.

If only their was a system which could attend these plants the family would not only continue to have their plants upon arrival, they wouldn't ever have to worry when leaving home.

PLAN

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REQUIREMENTS

- Arduino microprocessor
- Temperature Sensor
- Humidity Sensor
- Water Pump (Stepper motor)
- Dust Sensor
- Solar Panel / Sensor
- UV-Diodes

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