**IoT Challenge 2018**

**Event attended at Zonal Center: PES University**

**Date of Prelims Round: 4th March 2018**

**Team Details:**

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**Project Name:**

VerTech

**Solution for Industry:**

Smart Buildings and Retail

**List of Hardware Equipments to be used:**

**Development boards and modules :**

* AVR Kit V2/V3 with Atmega16
* Bolt hardware module

**Sensors:**

* DHT sensor (Humidity and temperature)
* Soil moisture sensor
* LDR sensor
* pH sensor

**Hardware:**

* Solenoid tap
* LED strip/UV lights
* Dispenser unit
* 12V supply
* LCD screen

**Cloud:**

* Bolt platform

**Current Problem in Industry:**

* Fresh vegetables are always in demand in the consumer market. Organically grown produce is generally more **expensive** and **hard to find** .
* There is significant **loss of food and energy** (carbon emissions) in everyday transportation of these herbs and vegetables.
* This forces industries to follow **unsustainable farming practices** resulting in poor quality.

**Proposed Solution:**

An IoT based monitoring system that integrates the sensor array with the Bolt platform to provide the user with data analytics and management dashboard.

We propose an easy interface that optimises the vertical farming practice which requires minimal management, and increases yields through proper monitoring.

**Brief Detail of Solution:**

The AVR Kit V2 with Atmega16 will form the main control system. This kit will be linked to various sensors and mechanisms:

* **DHT sensor**: Monitor temperature and humidity so that the optimum conditions can be set for the particular plant.
* **LDR sensor:** Monitors and controls the lighting.
* **Soil moisture and pH sensor:** Monitor the moisture and pH content in the soil to provide optimum nutrients for growth.
* **Dispenser Unit:** Supply sufficient water and nutrients for each plant.

Data from all the sensors will be sent to the Bolt Cloud platform via the Bolt IoT inventrom module. The Bolt cloud will show detailed analysis based on the sensor data.

Vertical farming of plants using organic techniques with our IoT platform in retail stores, industries and food suppliers significantly brings down the cost and carbon emissions while ensuring increased yields. The model can also be miniaturized for home applications.