

HydroSystem

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Project Overview

HydroSystem is a water cleanliness management system. Its application is to monitor the turbidity levels present in water. This is important for growing hydroponic plants in water without soil. HydroSystem will turn on its filtration pump if the turbidity level present is too high. Once the turbidity level is back to a healthy level, a DC motor will rotate to open the hatch above the water. This will supply the plants with nutrients.

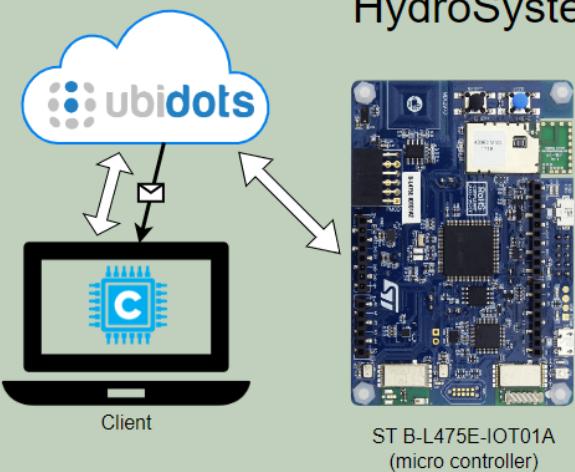
Results

Initially I used AC to DC conversion to get the NTU present in the water. Shortly after I discovered using I2C would be a lot more efficient. This is as I2C uses less wires (only a clock line SCL and a data line SDA are required). I2C is designed to operate at low power making it, which is essential for HydroSystem. Addressing I2C allows multiple devices to be connected to the same bus compared to AC to DC only capable of serving the one device.

Conclusion

HydroSystem successfully filtrates water when the NTU present is higher than the clean threshold. Once the NTU present is below the clean threshold, nutrients are supplied to the plants, this gives the plants a healthier environment to grow in. HydroSystem also automates the growing of plants in a more efficient and effective manner. Using I2C over AC to DC reduces HydroSystem power consumption. I2C also offers more flexibility with its addressing and the use of fewer wires.

HydroSystem



Future Developments

In the future HydroSystem can be upscaled from this model to a commercial size and can be controlled from the Ubidots STEM dashboard. The user will be able to manually feed the plants from the Ubidots dashboard remotely even if the NTU present is below the clean threshold level. There is further room to add sensors to detect the water quality (salt level present) for sea life (goldfish, toads and turtles).

