Summary

Work achieved:

The mobile phone app, which connects to the IoT cloud, has been developed to do the monitoring and controlling of the system through the internet. For monitoring, ESP-12e will transmit the reading data to the IoT cloud, and then the app will receive data from the IoT cloud and show them on the screen. For control, the app will transmit on and off commands to the IoT cloud, and then the IoT cloud will transmit the data to ESP-12e to change on and off states for components such as water valve, air pump, fish-feeder.

The fish feeder has been built with SG90 9G Servo Motor and 3D printing materials. I have successfully applied a simple fish feeder into the system, which allows setting the period of feeding time in a day through the app, with the help of the system's built-in time by DS3231 component.

DHT 22 has been added to the system to sense the air temperature and moisture for better monitoring.

In a nutshell, several new components have been implemented to achieve new functionalities such as sensing air temperature and moisture, time, and feeding. The IoT platform has been constructed to utilize the ESP-12e wifi module to do the remote monitoring of sensors’ reading data and control using the app.

To improve:

The fish feeder may need extra elaboration with its appearance.

The current app can be reconstructed using other software development kits such as Flutter, to support cross-platform.

Demo

Fish Feeder:

<https://youtu.be/uO4uo2VN924>

Air Pump:

<https://youtu.be/etDUo3eymDk>

Water Valve:

<https://youtu.be/4ZcvhLpgzfI>