Hey guys,

My name is Benn Hamer and welcome to my home workshop in sunny Newcastle.

I’m going to give you a quick demonstration on my final project, discuss the different things that I have learned and ways I could continue to improve the project.

I have designed and developed an automatic fish feeder and monitor.

So, the setup is a Raspberry Pi 3 which is connected to the home Wi-Fi network, and in turn the internet. I have attached a 5-megapixel camera which captures the video stream and there is a small servo motor which actuates the feeding mechanism.

I also have this display connected via HDMI.

Over here we have a Particle Photon which is also connected to the internet. It has a DHT22 temperature sensor which is meant to monitor the water temperature but I chose to not have actual water or fish in here during development to keep things clean and safe.

Let’s give it a quick spin. So you can see on screen the live feed, and also the current temperature via thingspeak.

And then when I run the python script the feeder does its thing. It rotates 180 degrees and moves back to it’s home position.

The multiple components make up the embedded system, all performing tasks, connected to a network for a greater goal, of keeping Donatello well fed and happy.

I spent a good amount of time for the project researching the Raspberry Pi, for a low powered device it is very powerful and the way it can integrate with other devices extends it further.

The first iteration of my project used a different microcontroller, the spark, but I found that the photon was better suited for what I needed

I would like to continue the development of the project, possibly 3D printing a more efficient feeding mechanism, enabling a secure method to access the system from other locations and building a waterproof housing for the device as well.

I will also post all my source code to OnTrack. I will also post all my source code to github if you’re interested, my user name is “Stop Kicking The Robots”, which I am strangely quite proud of. I have also posted a link in the discussion board to my repository.