**Plans and Progress**

*Here you should give as much detail as you can about what your project will do, and how you will do it. This should also include*

*how far you have got with developing any features or outcomes from your project.*

The plan for transforming a regular mailbox into a *Smart Mailbox* requires the mailbox to be able to provide feedback and information to a device, such as an app on a mobile phone. To achieve this the plan is to create a small unit that fits inside the mailbox.

This unit is made up of a microcontroller with several sensors that feeds the microcontroller with information to compute and deliver this information to the user.

Starting with the microcontroller, the plan was to source a device that was low in power consumption, in addition to being small enough to fit discretely inside a mailbox that could turn inputs into a useful action, such as giving notifications to an app.

The team discussed other options such as a Rasberry Pi, however the use of a Rasberry Pi for this application created more complexities, the biggest issue using was power consumption. After calculating the required the power needed to run the unit, the choice of going with a microcontroller was an easy decision.

Now we have a controller, the controller now needed a process to follow when receiving information from inputs given from the mailbox, inputs of new mail, temperature, and humidity. This required the microcontroller to execute these tasks via a program. To create a suitable and functional program, with limited experience in the team, the strategy was to keep the program simple at first, only taking a single input from a micro switch, that will replicate a mail delivery, get this functional, then implement a temperature and humidity sensor module into the program and controller. The program will be generated using the Arduino language in Arduino IDE, then flashed to the controller via the Arduino IDE.

Now with the plans of the controller and programming taken care of, next is configuring the controller with hardware that will produce and transmit the inputs. For R&D purposes and to save time, the controller and microswitch will be assembled and wired via a breadboard. This use of a breadboard with wire jumpers will give flexibility when adding and testing additional components and make changing pin-in/pinout configuration a straightforward process, as it eliminates the need for soldering.