**Project Deliverable G - Prototype II and Customer Feedback**

**GNG 1103 – Engineering Design**

**Faculty of Engineering – University of Ottawa**

**Group 20**

**Michael Saber**

**Justin Mahfoud**

**Ayo Akinbile**

**Tate Sharp**

**Macauley Aicken**

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**Introduction:**

Our second physical prototype for a seed dispenser was made with the intention of clearly communicating how the seeds will be dispersed under Bowie. Of all the aspects of our seed disperser, the only controversial topic was *how* we were going to get the seeds to get from the hopper to the ground at a controlled rate. This is done with the use of an Arduino. With this second prototype, we will clearly plot out how our team has, and will continue to analyse our prototypes for the seed dispenser attachment.

**Objectives for our prototype II:**

Our specific test objectives were to get a basic proof of concept of our idea. This will allow us to visualize our idea and see what problems we did not think of before. Furthermore, it will give us a base on which to build our final prototype.

This prototype allows us and the customer to learn what problems the concept may face so that we may work on said problems to fix them. Also this prototype allows us to more easily communicate our idea to the customer to allow more accurate and useful feedback. This prototype will be used to easily communicate our ideas with Erin during our customer meeting on March 13th.

The types of results we expect from our prototypes are : “Good”, “To be Improved” and “Bad”. The good results are ones that are fine and work as intended and can remain the same. The “To be Improved” results are ones that can be made better using our knowledge and skills so that they may work as intended. The bad results are ones that cannot be fixed or improved and must be scrapped and remade so that they may work as intended.

These results will allow us to know what aspects of the prototype must be improved so that the prototype can be functional and which aspects must be completely re-worked because they are impossible to improve. Overall these will allow us to make sure that our final prototype can be as functional as possible.

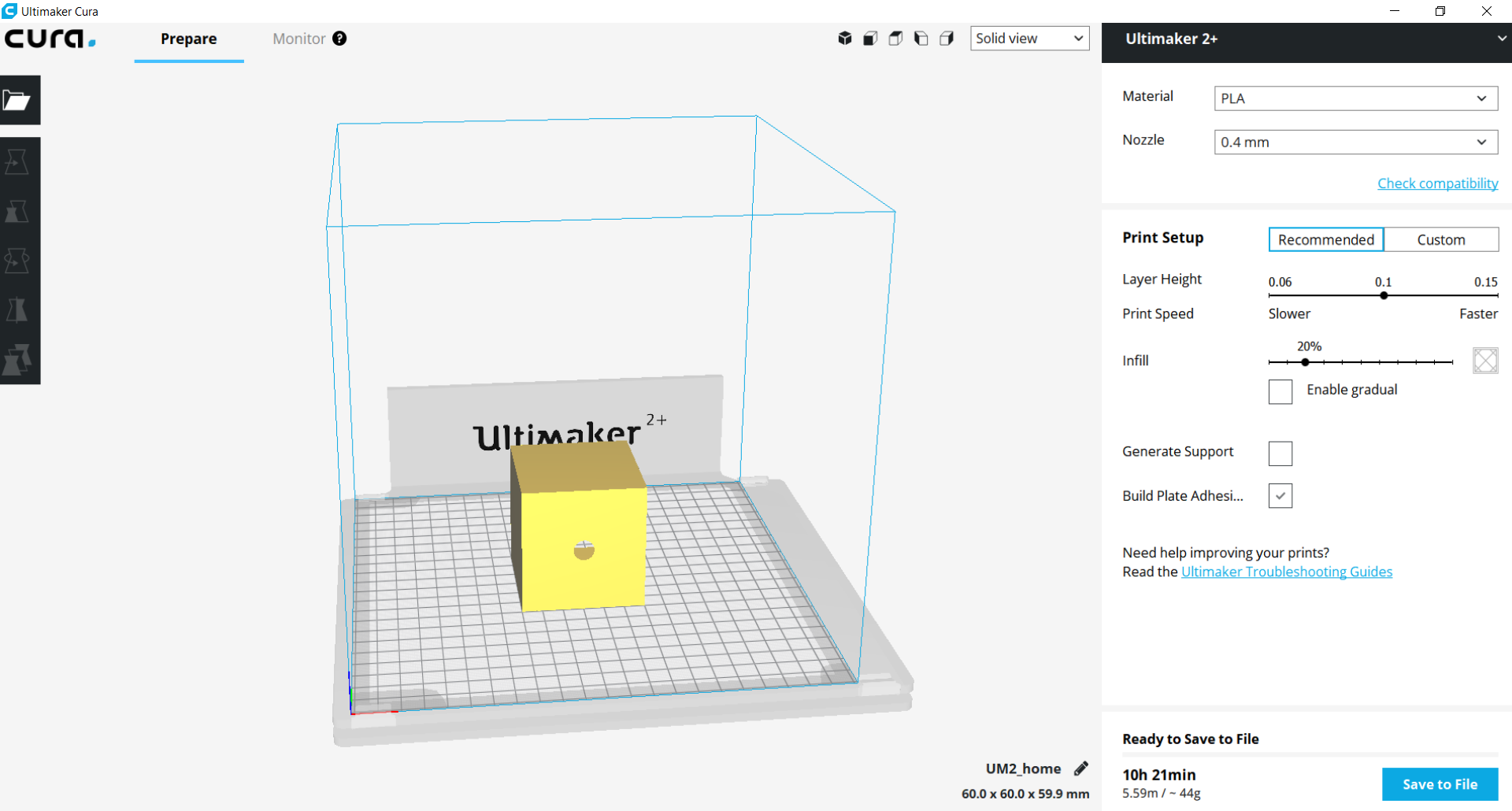
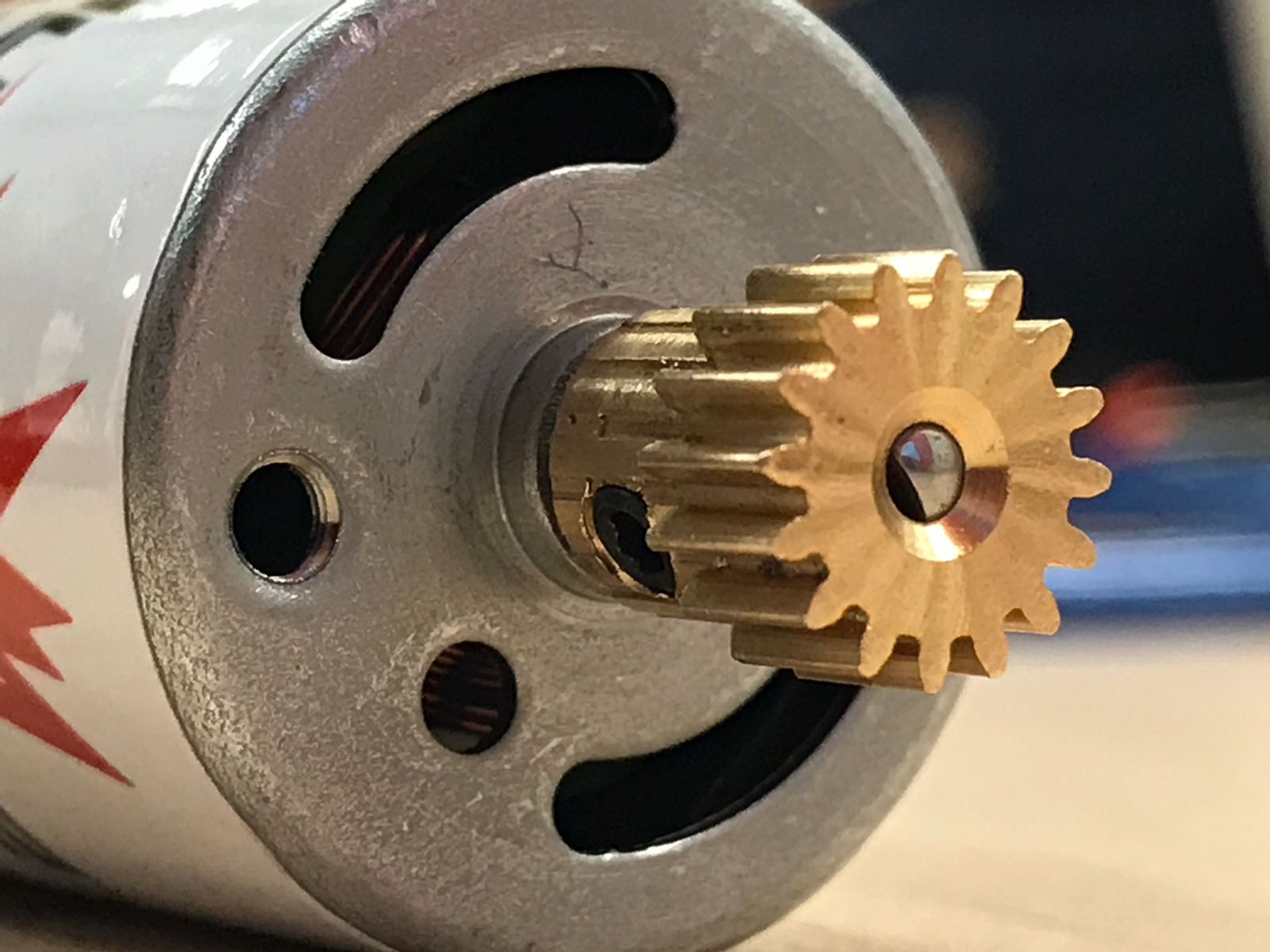
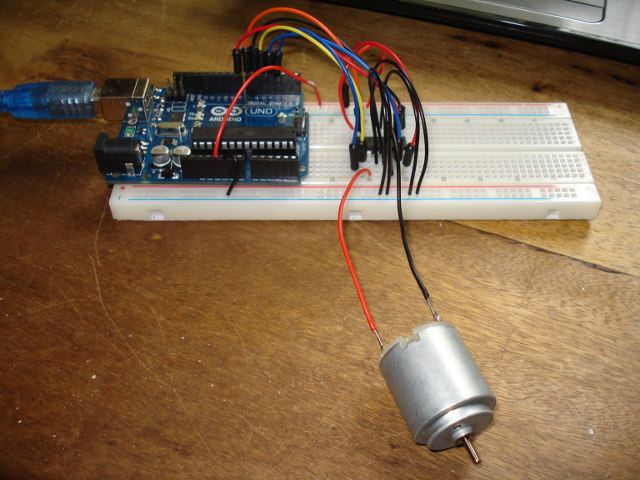
This prototype will allow us to figure out what shapes and styles are allowed with the use of a 3D printer. We will encounter failures during out printing which will result in a possible final prototype.

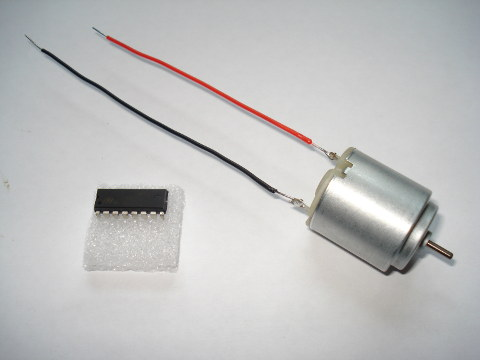
**What and how will this happen?**

We have further developed on our first prototype using proper material such as plastic, breadboard and an electric motor so that we are able to realise what concept actually works. It also allows us to see which aspects of our concept need to be improved or changed for our final prototype. We achieved this by using the same materials as our final prototype to ensure that these materials are able to help us achieve our goal.

**When is it happening?**

It is being done on a week to week basis to make proper adjustments and assure the final prototype is fully functional.

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These are our major components of our prototype 2 that was produced using plastic, an arduino setup and an electric motor, as shown in the pictures above. The plastic objects have been 3D printed using the Ultimaker 2+ at the MakerLab and includes a seed hopper and the gear to disperse the seeds. The previous prototype has allowed us to eliminate certain components from this prototype such as the tube connecting the seed hopper to the gear. This elimination is due to the gear and the hopper being really close to each other, allowing us to not need the tube anymore. We’ve respected our 100$ budget and we are on track to maintain that budget by our last prototype. Our second prototype has cost us a total of 92.99$, leaving us with 7$. We will be using all components of our second prototype in our final prototype so the money spend on this design will brought on to the final result, so no money is gone to waste.