Project Deliverable F- Prototype I and Customer Feedback

GNG1103 - Engineering Design
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1.0 Introduction

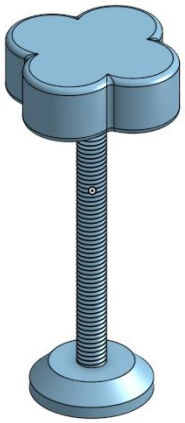
The goal of this deliverable was to develop our first prototype using our chosen design concept along with the feedback we gathered from the second client meeting. The first prototype will be used to give the clients a better understanding of our idea of the project and get additional feedback for the second prototype. This document will include the client feedback from the previous meeting, images of the first prototype, an analysis of the prototype as well as a detailed plan on how we intend to test the prototype.

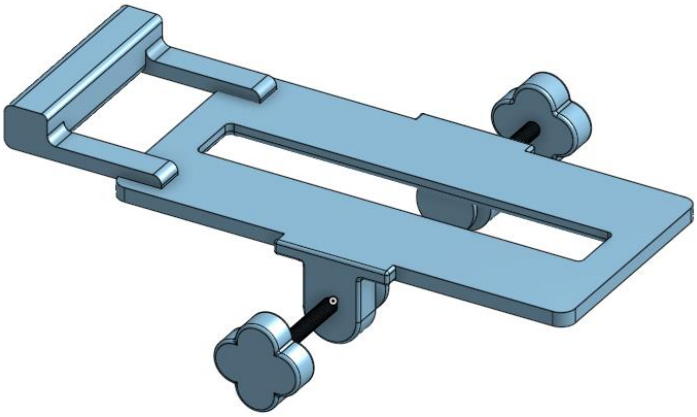
2.0 Prototype

2.1 Prototype Objectives:

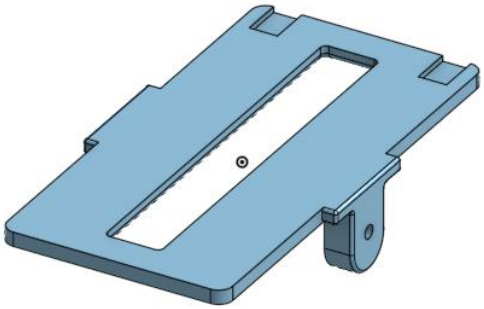
- Construct 3D files of all vital parts of the jig; including handle, platform, and clamps
- Assemble parts to view the overall shape of devised jig
- Assign future task/updates to further develop design
- Determine Test Plan

2.2 Prototype Images:

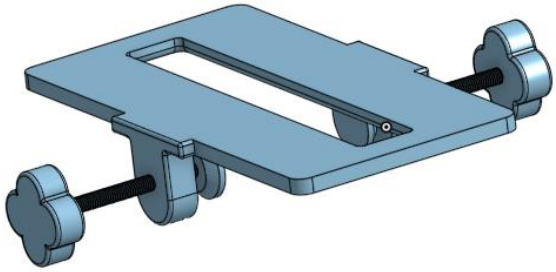
Knob With Threaded Rod:

Full Jig Assembly with Handle:



Platform:



Full Jig Assembly without Handle:



2.3 Analysis of Critical Components:

Critical Components:	Purpose:
Knob & Threaded Rod	Allows for the tightening and loosening of the clamp system, also allows for the adjusting of the platform. These clamps can adjust the position of the platform on the surface of the door side; this allows for the adjustability of the back-set. The threaded rod is of a M6 screw standard and a 1mm pitch. It is 70 mm long allowing for ample range of adjustability. 70 mm is also a standard length for these rods, allowing for a metal purchase option. The Knob is a clover design for comfortability of use, this part will be entirely 3D printed, with a hole underneath to allow a threaded insert to be hammered in.
Platform	The platform is to act as a guide for the router when clearing out the hole for the flush bolt. It has a cutout of 6.75” x 1” to guide the router. The platform also facilitates the clamps. This part is to be entirely 3D printed. The holes will have a threaded insert placed into it to allow for the implementation of the threaded rod.
Handle	The handle is to allow for better handling of the jig and allows for a way to hang it on a workshop board/bench. It adds an extra bit of functionality. This part will be 3D printed and an adhesive will be used to apply the handle to the platform.

Stopper	The stopper is to have a large surface area when in contact with the wood to avoid any damage. A rubber cutout will be applied at the end to further avoid any damage.
Measurements	Although the measurements are not directly visible on the CAD model, in the finished product it will likely be applied through a sticker method. Measurements are needed to exactly measure the back-set required.

3.0 Consumer Feedback

- Go for a straightforward appearance by sticking to a single cutout in the design, making things look clean and simple.
- Select 3D-printed plastic as the primary material, allowing for a wide range of possibilities in combining different materials. This not only enhances the overall functionality but also opens up avenues for creativity and innovation.
- Enhance the user experience by incorporating clear visual cues, ensuring that users can easily determine when the door is perfectly centred. This feature adds an extra layer of convenience and efficiency, simplifying the overall operation.
- Prioritize user-friendliness by designing a mechanism that eliminates the need for manual measurements. This not only reduces the complexity of usage but also caters to a broader audience, making the product accessible and easy to handle for everyone.

4.0 Prototype II Test Plan

Test ID:	**Test Objective (Why)**	**Description of Prototype used and of Basic Test Method (What)**	**Description of Results to be recorded and they will be used (How)**	**Estimated duration of Test**
1	Determine the stability of the screw clamping system.	Each prototype part will be 3D printed from the CAD model and then assembled. The prototype will be used on a slab of of wood no larger than 2 ¾ in.	First result recorded will be simply observation if the jig remains securely clamped. A protractor or torpedo level along with eyesight will be used to find any tilting.	Test should only require 10 minutes to set up and observed the stability of the jig's clamps.
2	Check ease of adjustment.	3D printed prototype will be used. After clamping the jig to a wood slab, screw and	Observe if the jig remains easy to control when manipulating the	This test should only require 5 min to complete.

		unscrew the clamps to adjust its position.	clamps. Check for any tilting or if it is unlevel.	

5.0 Conclusion

In conclusion, the development of our first prototype signifies a crucial step forward in our project. With our chosen design concept and incorporating feedback from the second client meeting, this deliverable provides clients with a tangible representation of our evolving vision. The primary goal is to elicit additional feedback for the second prototype. This document discusses the client input, showcases images of the initial prototype, offers an analysis, and outlines a detailed plan for testing.