

## Project Deliverable F: **Prototype I and Customer Feedback**

### **1.Feedback:**

The feedback gathered from the client on our initial prototype design highlighted two key areas for improvement. Firstly, they recommended the incorporation of an adjustability element to the jig drill guide. In response to this, we have introduced a sliding mechanism to enhance the flexibility of the jig, allowing users to make precise adjustments based on their specific needs.

Secondly, the client suggested enlarging the drill guide holes to provide a more forgiving margin of error for users and to facilitate smoother drilling. In accordance with this feedback, we have increased the size of the drill guide holes, ensuring that they are slightly larger than the drill itself. This adjustment aims to enhance user experience by making the drilling process more user-friendly and accommodating.

### **2.Developing Prototype:**

Why:

The main goal of our jig is to meet the precision and clarity requirements of our clients at Ambico. As our clients are door manufacturers, they specifically require a drill guide for installing door hinges in the backset of a door. It's imperative that the drill guide is securely fixed, ensuring it remains stable without any turning or shaking during use.

What:

The prototype will be a physical representation of the envisioned product or system. It will encompass key design features, functionalities, and interactions outlined in the plan. This includes incorporating the adjustability element to the jig drill guide, introducing a sliding mechanism, and integrating two vertical and horizontal bolt clamps. The prototype will not only showcase these elements but also serve as a hands-on tool for testing and validation.

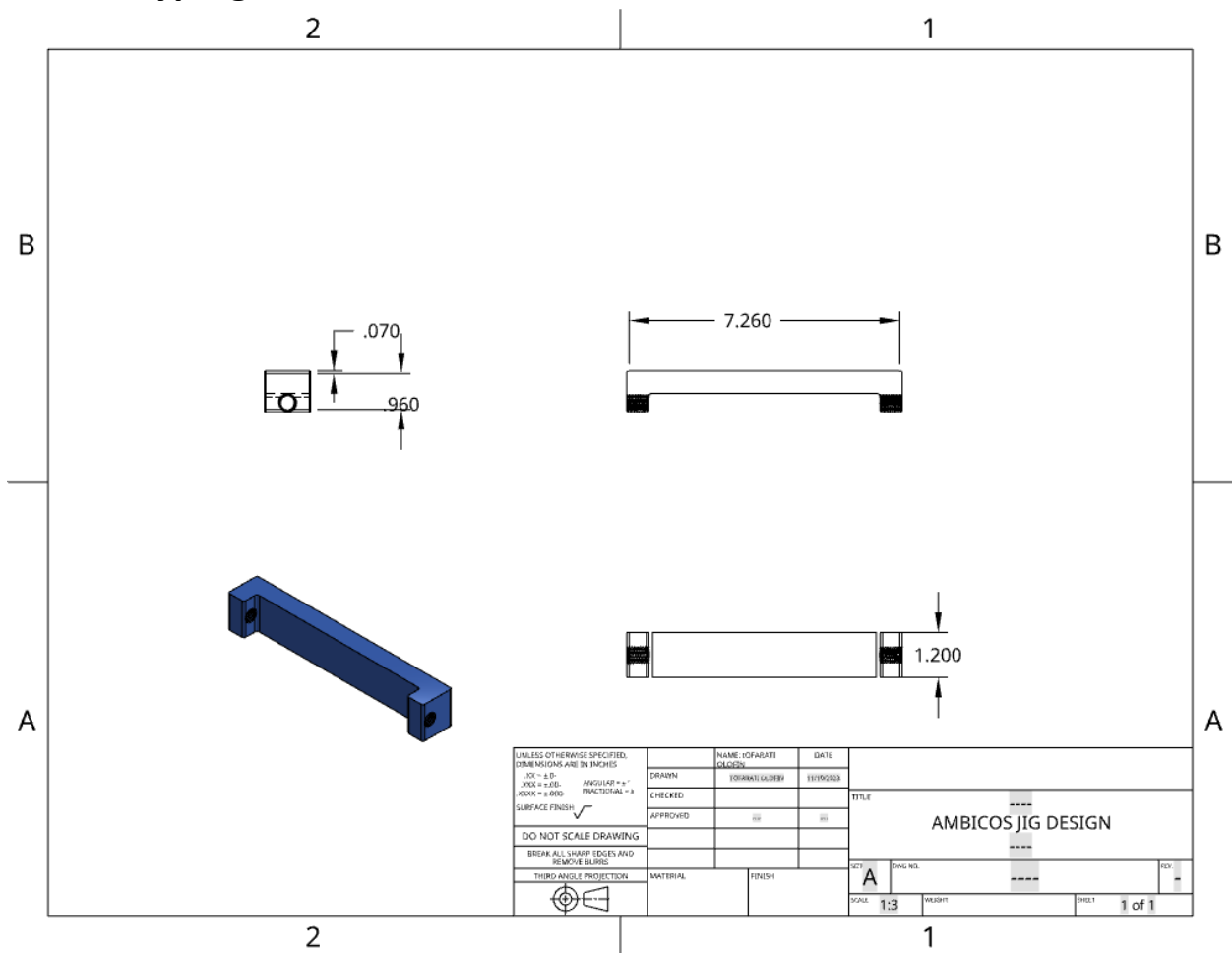
When:

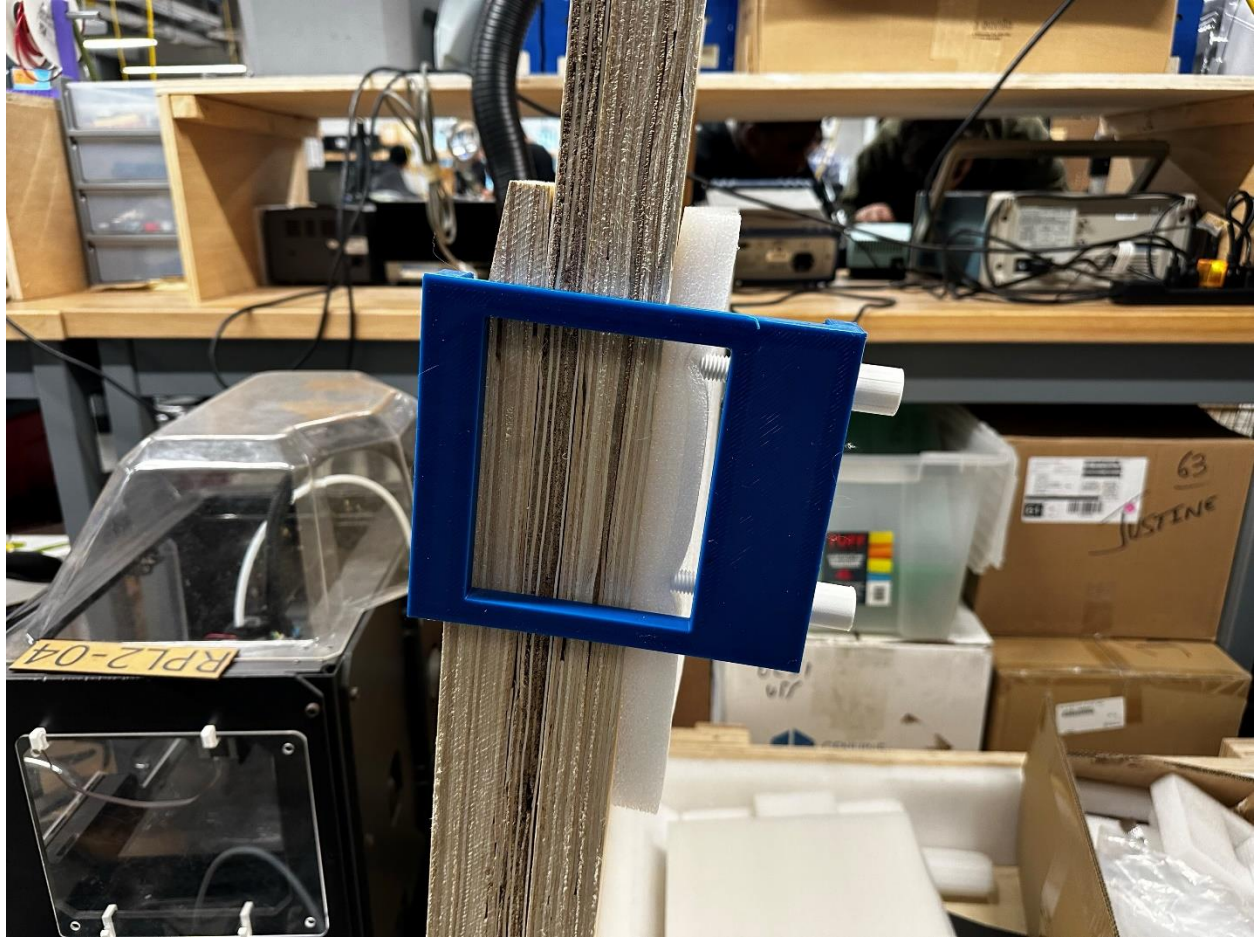
We will begin crafting this prototype after completing the initial design phase, which involved creating a draft drawing of the jig. The fabrication of our first prototype commenced on November 1st. Our target is to complete and finalize the product by November 30th.

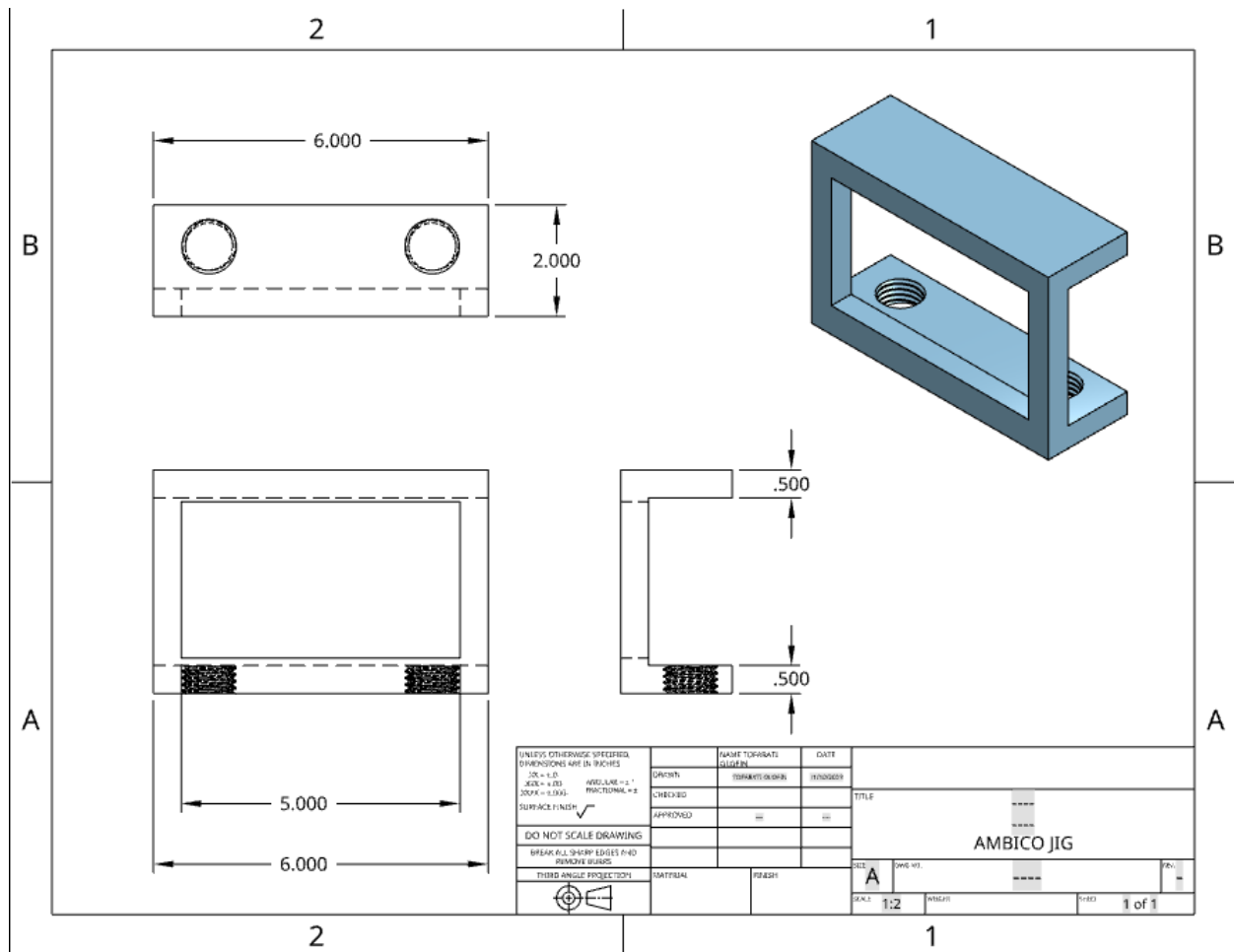
### 3. Analysis of Components:

1. We needed Lightweight frame and design.
2. User friendly design such a clamp, slider and bolts
3. Low maintenance and non-complex moving part

### 4. Prototyping Test Plan:







## 5. Prototyping Feedback:

Feed back on the clamping mechanism was to make the screw at the bottom bigger. We went through several iterations at 8mm to 11mm to 23mm screw.

## **6.Target Specification:**

### **1. Screw Size:**

- **Must exceed M23 in size.**

### **2. Weight:**

- **Should be lightweight for easy handling and maneuverability.**

### **3. Adjustability:**

- **Must be adjustable to accommodate various settings and preferences.**

### **4. User-Friendly:**

- **Should be designed with user-friendly features for ease of use.**

### **5. Padding:**

- **Must include padding for added comfort and safety during operation.**

## **7. Prototype test plan:**

Please fill in the following table, filling in each cell as carefully as you can for each test (i.e. there should not be *any* blank cells in a row). Please capture *all* tests that you plan to execute, however small or insignificant they may seem. Tests in each row should be unique and independent of each other, however.

Add or delete rows in the following table, as required, but do not delete or modify the columns. Look at the questions at the end of this document, to see what information should be included in each table cell. As we have learned, there are multiple types of objectives for prototyping, and you need to be clear about exactly what each of your tests is trying to accomplish.

In general, more independent and more modular tests are better than just a single, giant test that attempts to test overall functionality. You probably want to test overall functionality towards the end of the term too, but you want to do this *well before* Design Day. This will give you time to fix any problems that you do find with your comprehensive prototype! The likelihood of such problems will be *much* smaller, if you have been thoughtful with your previous prototype testing though!

<b>Test ID</b>	<b>Test Objective (Why)</b>	<b>Description of Prototype used and of Basic Test Method (What)</b>	<b>Description of Results to be Recorded and how these results will be used (How)</b>	<b>Estimated Test duration and planned start date (When)</b>
<b>1</b>	To evaluate the accuracy, durability, and user-friendliness of the prototype.	Prototype: Drill with associated jig  Test Method: Place the jig on a wooden surface and drill holes to assess accuracy.	Results: Evaluate spacing of holes and check if holes are centered.  Use: Determine the efficiency of the jig in terms of accuracy.	Test Duration: 40 minutes  Planned Start Date: 10th of November