ECOR 1047

Final Report

Visual Communication Methods

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1 Abstract

The serialisation of ideas is paramount across all fields of engineering. It is important to get ideas out of your mind and into others, so others can iterate over them. Therefore, it is important to establish standards and processes for explaining ideas as effectively as possible. In the context of manufacturing and computer-aided design, these tools include freehand rough sketching, photography, 3D modelling, and the generation of design drawings from an aformentioned 3D model or by hand with measuring and drawing tools.

2 Introduction

Following is a list of every team member, their majors, and their roles within the project:

- Barry, Kali (Software Engineering): Digital formatting, 3D modelling, and reporting
- O'Ray, Daniel (Aerospace Engineering): Physical formatting, project management, and reporting
- Simoes, Lucas (Aerospace Engineering): Advanced 3D modelling of complex shapes
- Tompa, Justin (Aerospace Engineering): Assembly management (3D assembly generation and exploded view)

Every member of the group equally contributed in Deliverable 2, where each member was responsible for providing drawings of 2 components.

3 Description

Our project aims to detail and describe our object, a standard retractable pen, in great detail with the following visual communication methods:

1. Photography
2. Hand sketched drawings using drawing and measurement tools
3. 3D models generated with Autodesk Fusion 360

For our first deliverable, we disassembled the pen and photographed each component 4 times, producing a front view, right view, top view, and isometric view. For our second deliverable, we used hand-sketching to draw and dimension all 8 components in their multiview drawings. For the third deliverable, we used Autodesk Fusion 360 to create 3D models of each component of the pen, and we created multiview and isometric drawings derived from each 3D model.

4 Purpose

The purpose of this project was to exercise and practice our skills in visual communications and teamwork. We chose an everyday item composed of multiple smaller components and, using all the tools gained in ECOR 1047, we presented and detail every aspect of the objects to meet the requirements for replication via manufacturing or otherwise. Each team is composed of multiple people, further allowing this project to test our collaborative skills and communication.

For our object, we chose a mechanical pen made from primarily plastic with small amounts of metal. The object has many interlocking pieces, as well as full pieces fitting inside of each other to form the pen. The pen itself is approximately 141 mm in length and 16 mm across, containing many different shapes such as cylinders, coils, rounded cones and other original, non-conventional shapes. This was a driving reason for our choice of item, as it tested our skills in all methods of detailing.