M1.1 - Watch Case Design & Watch Kit

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Background
The norm of the watch making industry is to outsource their internal components and add value by fabricating their own personalized cases. Their watches can be sold upwards of $1000.

Our goal is to produce a watch case for the Unitas 6498-1 mechanical movement. Additionally we will create watch containing materials and instructions such that other students will be able replicate or customize our watch design.

Problem, Assembly, and Prototypes

**Problem:** Machining to ensure high accuracy and repeatability
- Part orientation & Re-zeroing
- Tapping “Screw down” holes

**Solution**
- Change square to cylindrical shaped stock
- Utilize more than 1 machine
- Modify machining operations
- Redesign part - remove holes and add internal threads
- Fixture design

**Fixture**

**Assembly**

**Watch Designs**

**Restricted Dimensions**

Specifications

**Conceptualization**
- Watch case
  - Water resistant - IPX7
  - Made from aluminum or 316L surgical steel
  - Protects and assures proper watch function

**Watch Kit**
- CAD/CAM files
- General Outline
  - States all materials and components
- Instruction Manual
  - States critical dimensions
  - States machining tools, process, and assembly

**Future Proposals**
- Create fixtures for watch assembly
- Further customizable options