**Hardware Accelerator with Malcolm Knapp**

The goal for this project was to take an idea/concept and turn it into a tangible product using a professional engineering work flow. This involves multiple stages:

**Brainstorming Stage:**

- What functions should device perform?
- What are possible ways to complete these functions?
- How much time and effort would each possible solution take?

**Product Definition:**

- Finalize features, and what expected output should be.
- Whittle down all solutions from Brainstorm stage
- Create a **Feature List**, to be used as checklist during Testing and Review & Release.

**Engineering Architecture:**

- Create **Block Diagram** that shows generic parts of the system and features (battery connected to MCU, connected to SD etc)
- Create a Pro and Con list in Excel for each solution
- Go more into specifics of the parts of system: What type of MCU (speed vs. memory vs battery), what type of powering option (wall, DC, AC)? Create **Detailed Parts Information (**excel sheet) with the part and the most important information from their data sheet (pins, voltage, current, temperature). This could also include formulas and calculation tools

**Implementation:**

- PCB layout and schematic
- Create **Error List** of possible errors, or specific features to check for.
- Save all data sheets in one place

**Manufacture:**

- Outsource or in house? Create a contact list, and go with place that can make reliable amount of supplies
- Create **BOM**
- Create first prototype

**Bring-Up:**

- First testing, refer to Error Checklist (any new errors discovered, record in Master Error List)
- What are the most important functions you noticed? Record and create a more structured Checklist for testing phase

**Testing:**

- More structured version of bring up, do testing over several trials

**Review and Release:**

- Go over Block Diagram, and see if your features work correctly
- Go over Error Checklist again
- Compare BOM to Schematic and Layout (correct package? Pin configuration?)