**Research Proposal**

Pip-Boy 3000:

Making Life Fun, Data Collecting

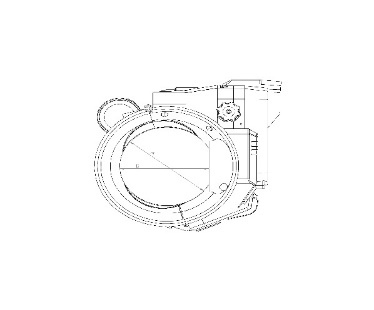
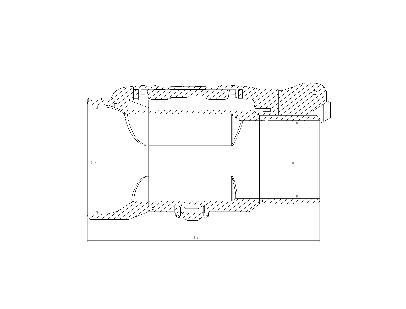
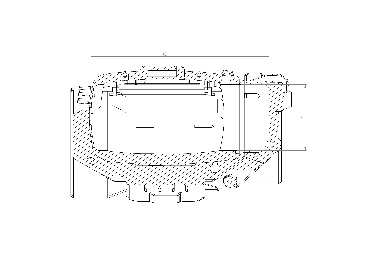
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**Abstract**

The pip-boy 3000 is an advanced piece of technology first seen in the game called

Fallout created by black isle studios. The pip-boy is primarily an assistance tool to help the user process data of the environment near the user of the pip-boy, the pip-boy collects data such as location gathering such as seen in Google’s application of Google maps, detecting radiation, determining if water is drinkable and is able to tell statistics of the user such as mental health status of the user. However not all functions of the pip-boy are practical because the pip-boy originates from a game that covers game mechanics, and game play. This proposal outlines the pip-boy design and its practical features in everyday life.

**Background**



**Research Goals**

**Milestone 1 - Research.**

The 1st part is of research is to get the proper 3D printer plans for the Pip-boy 3000 frame to ensure enough room for the Arduino Uno platform, peripherals and a high resolution screen by reviewing similar projects.

**Milestone 2 - Get Pip-boy Printed and hardware ready.**

After the research the 2nd part is to find the most cost effective way to manufacture/print the design for the Pip-boy 3000 frame and find or purchase any necessary parts to ensure the completion of the hardware for the Pip-boy 3000.

**Milestone 3 - Get Pip-boy up and running with base operating system.**

With the completion of the hardware assembly combined with the frame of the Pip-boy 3000 the next step is to design the operating system for the Arduino screen which will be designed with “4D Systems' All New Workshop 4 IDE”(4D Systems).

**Milestone 4 – Functioning lights and sound.**

To get the full experience from the Pip-boy 3000 the next step is to install the lights, a speaker, and the rotary switch to get the full experience.

**Milestone 5 – Get Pip-boy with working map.**

Next is to get the Google API service and integrate it with the Arduino for location map services.

**Milestone 6 – Status Effect through heart rate monitor.**

Explore putting in a heart rate monitor for the status screen that will determine the users wellbeing, the heart rate monitor will be able to detect how many if the user is nervous, rested well, anxious, or under stress.

**Materials**

Bill of materials as follows:

-3D printer source files.

-4D Systems 4.3 inch touch display (datasheet) (programmer).

-8 gig micro SD card.

-Adafruit PowerBoost 500 charger/booster (datasheet).

-Lipo 2500mAh 3.7v battery.

-USB breakout board.

-10 Position rotary switch.

-3 orange LED's (Radio Shack).

-1 red LED (Radio Shack).

-1-10k resistor (Radio Shack).

-2-220ohm resistors (Radio Shack).