

# TOA Trigger Board

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Racing data against each other can be useful to gauge the success of operations. The Arduino operates as a function generator that monitors the state of the circuit. The hardware is used to generate timing signals for ballistic projectiles in a single shot experiment.

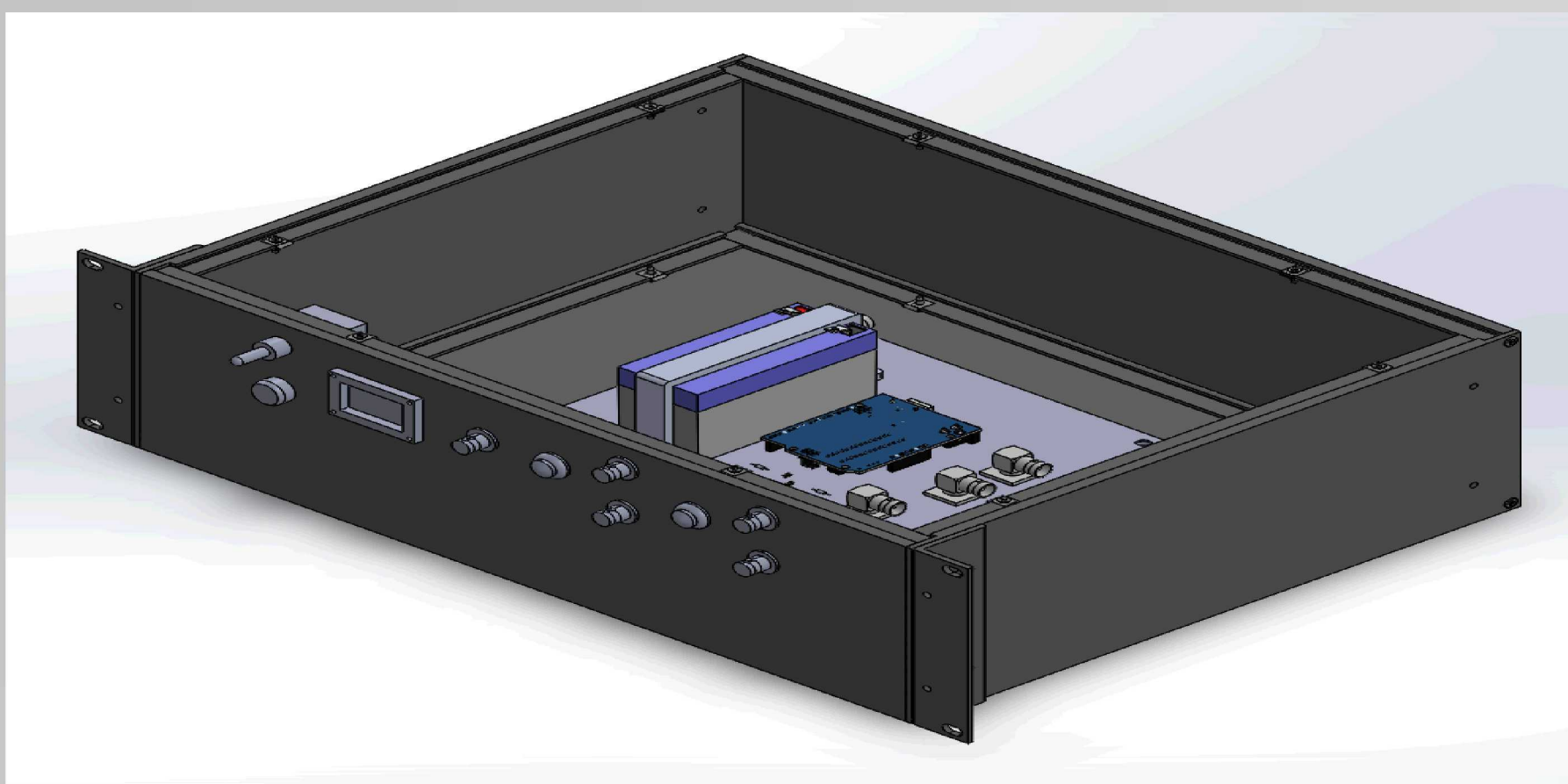


Figure 1: The original assembled mounting rack design

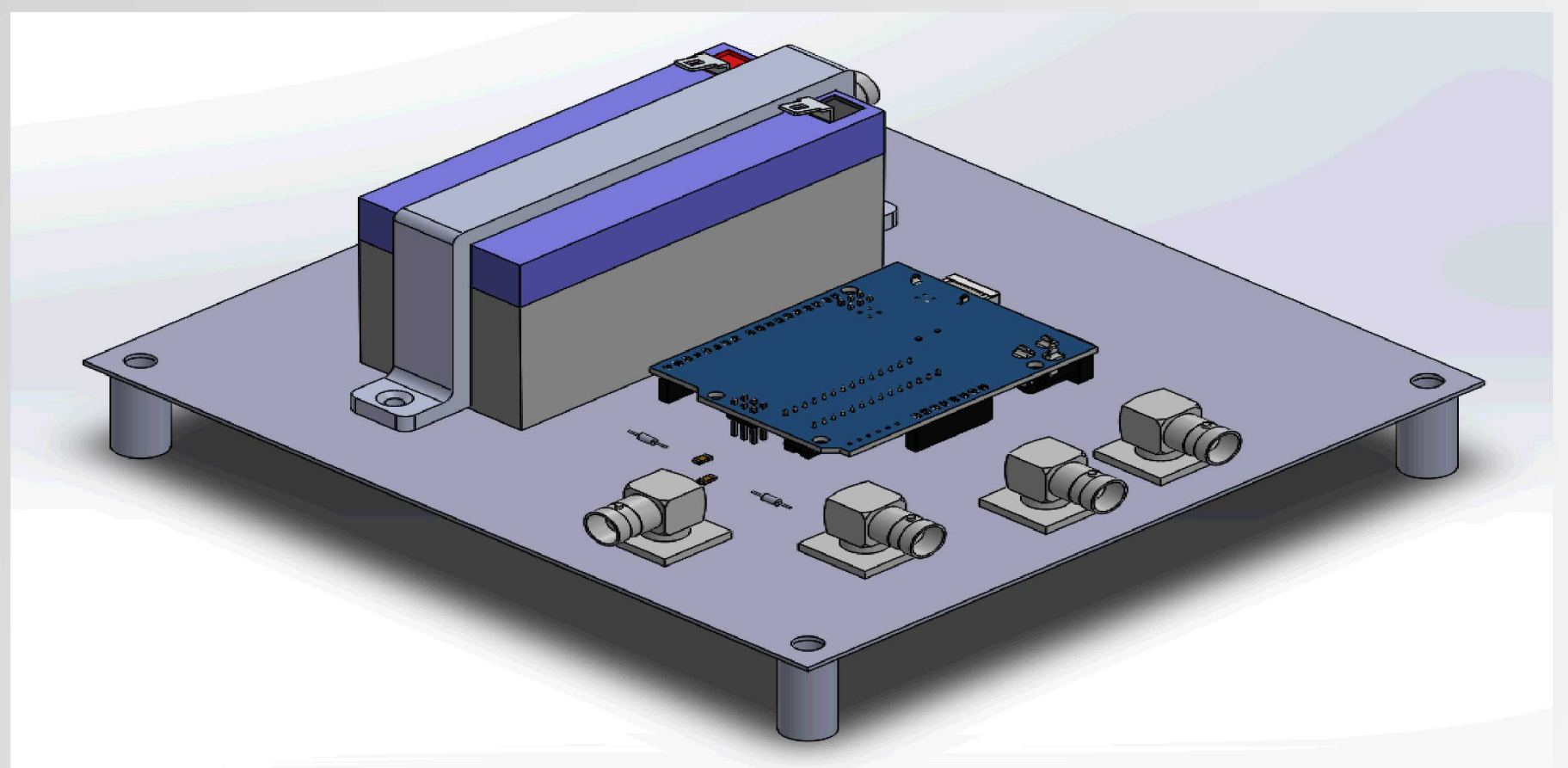


Figure 2: The original TOA trigger board design

## Board Description

The printed circuit board, mounts an Arduino Microcontroller which monitors the signal inputs and generates an output signal which is connected to an oscilloscope. The board has multiple connectors which interfaces to the front panel, and has connections to the oscilloscope and the test sensors.

Board Features: Two independent boards to act as independent function generators, one 12 V battery to power both boards and can operate in a remote environment.

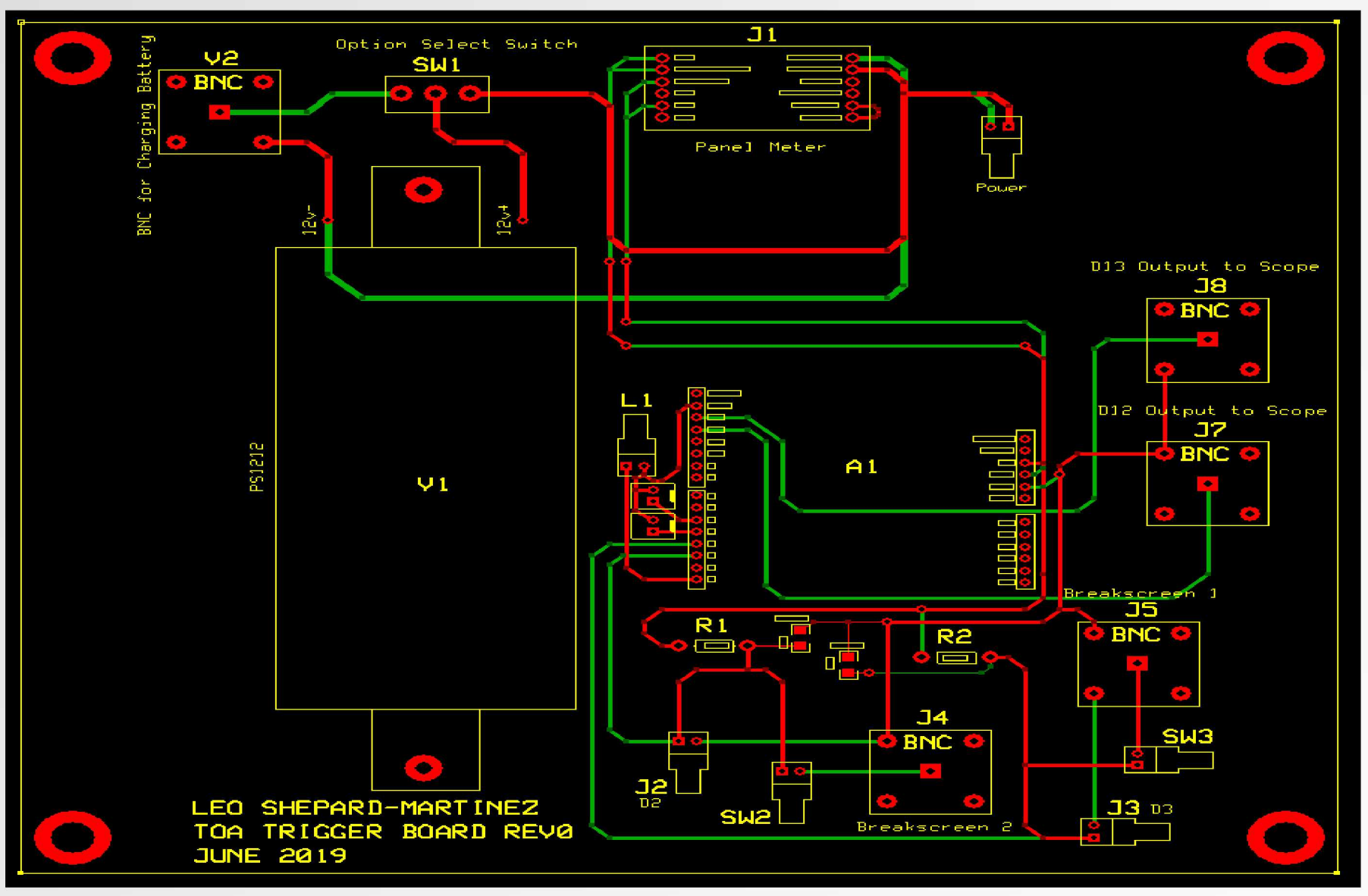


Figure 3: PCB and SW layout for the TOA trigger board

## Panel Description

The system has a three way toggle switch; the states are on, off, and off/charge battery. A voltmeter displays the voltage in the battery so that it's clear when to charge the battery by BNC connection. There are two BNC output signals and two BNC input ports for the sensor, and a push button to simulate the system operation. The LED operates as an indicator of what signal inputs have been read by the Arduino. There are four different blink patterns that show: idle, output from signal one, output from signal two, and both outputs triggered.

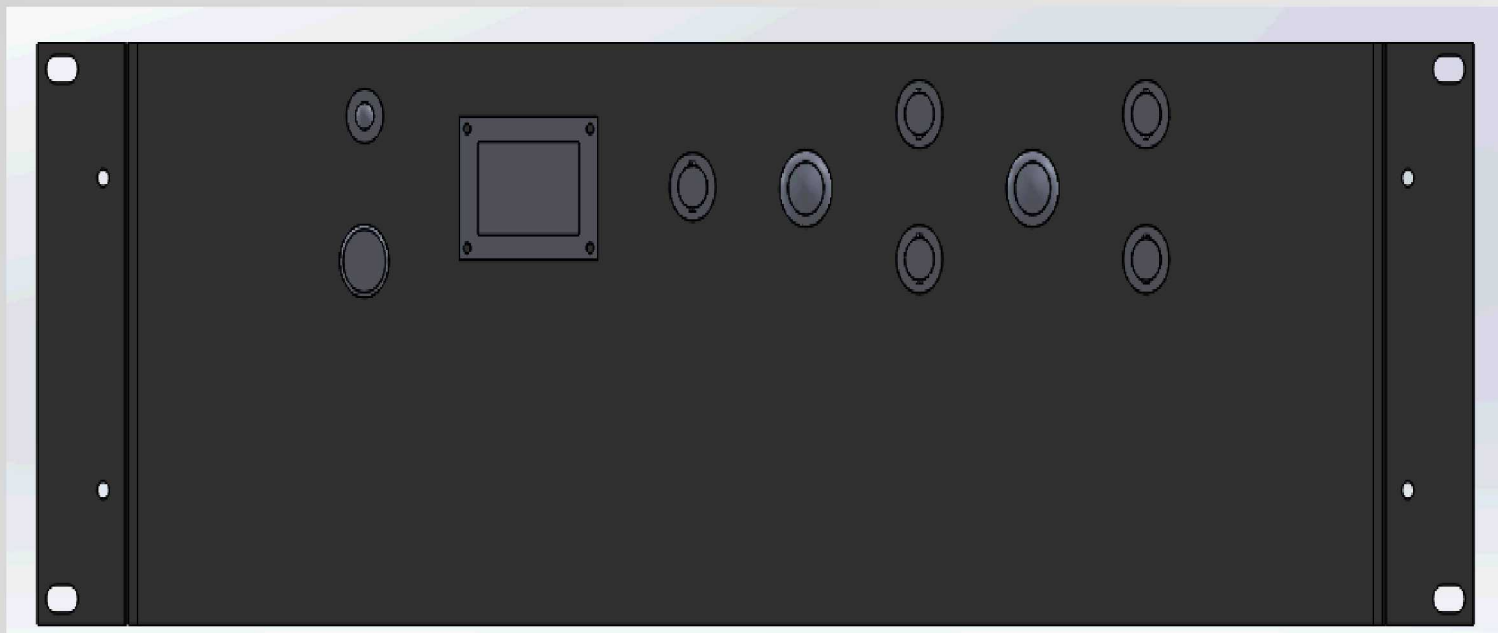


Figure 4: Mounting rack panel layout

## Conclusion / Future Work

Overall, the platform made in this project will be setup for use in testing operations for the Arming and Firing department (6635). If the assembly needed to be updated in the future, it would be beneficial to change the PCB layout in order to make a better fit and more robust assembly.