Underground Vibration Classification: PCB

I. FUNCTION: For our project, we decided to incorporate the necessary DC offset circuit as our PCB requirement. To obtain vibration oscillations, the geophone sensors need to be offset to capture both the peaks and troughs of the vibrations. Without this offset, the Arduino's analog-to-digital converter only capture the peaks of the vibrations, while the troughs are not captured and recorded as zero-point values. The functionality of the PCB will be to offset the geophone data by half the operational voltage of the Arduino microcontroller. The capacitors in our schematic serve to block any DC voltages from the Arduino from getting into the geophone sensors and the identical resistor values form a voltage divider that offsets the vibrations by half of the operational voltage of the Arduino.

II. Schematic Diagram:

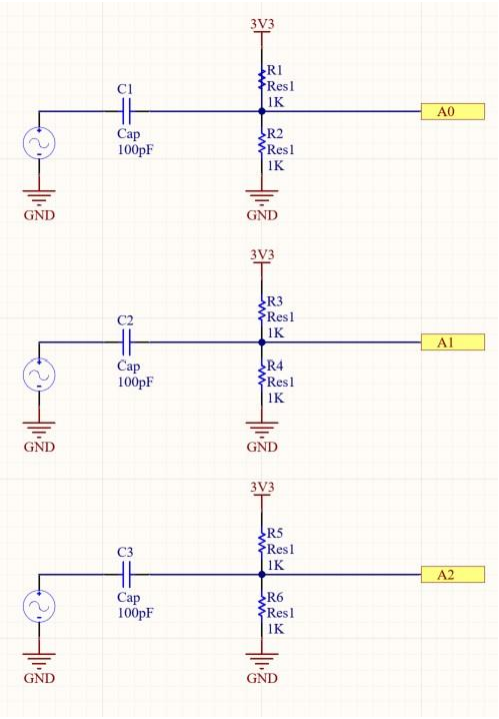


Figure 1 – Circuit schematic made in Altium.

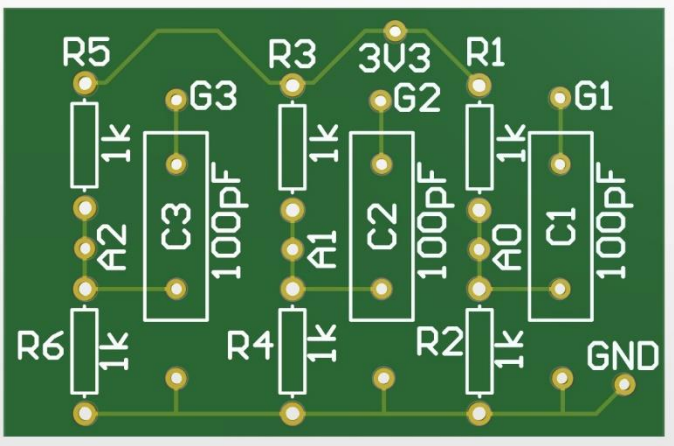
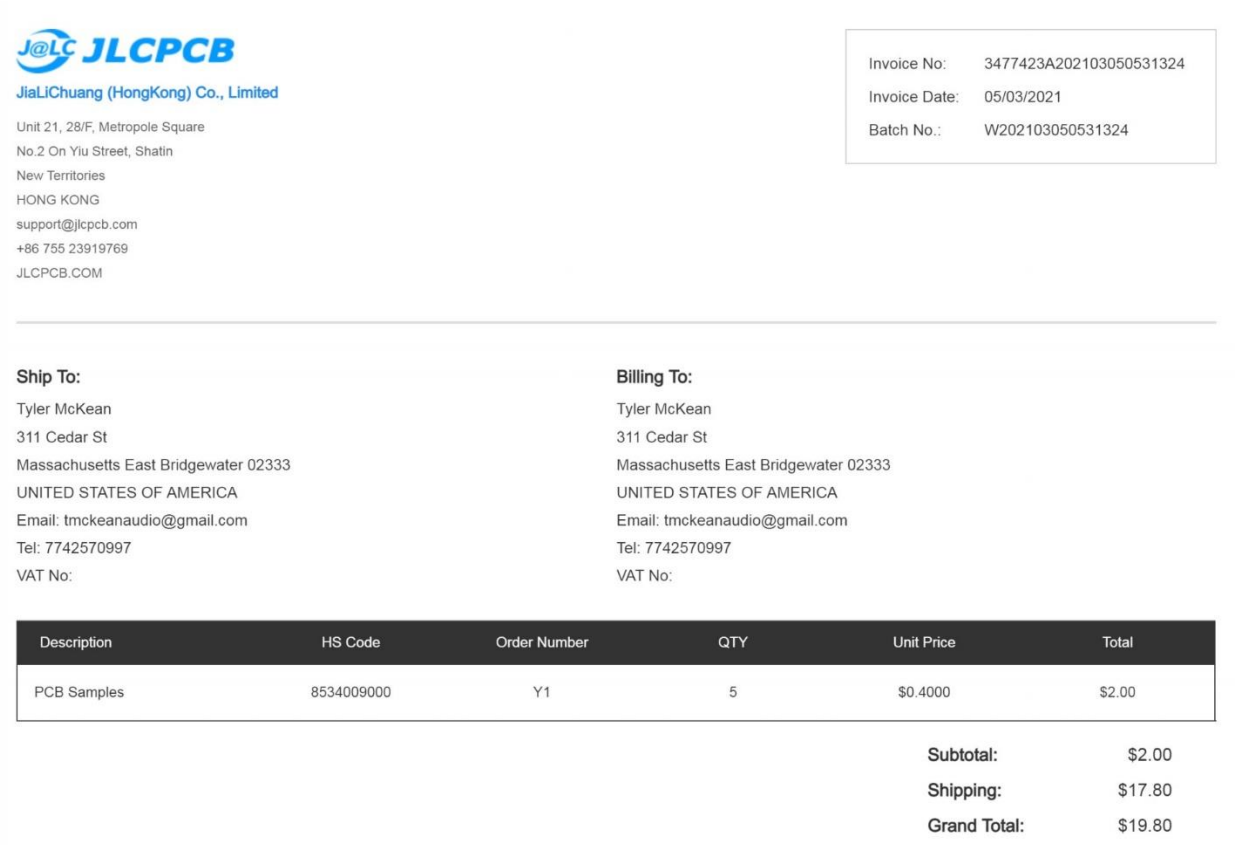


Figure 2 - PCB schematic made in Altium.

III. Production File and Ordering Information



JLCPCB

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Invoice No: 3477423A202103050531324
Invoice Date: 05/03/2021
Batch No.: W202103050531324

Ship To:
Tyler McKean
311 Cedar St
Massachusetts East Bridgewater 02333
UNITED STATES OF AMERICA
Email: tmckeanaudio@gmail.com
Tel: 7742570997
VAT No:

Billing To:
Tyler McKean
311 Cedar St
Massachusetts East Bridgewater 02333
UNITED STATES OF AMERICA
Email: tmckeanaudio@gmail.com
Tel: 7742570997
VAT No:

Description	HS Code	Order Number	QTY	Unit Price	Total
PCB Samples	8534009000	Y1	5	$0.4000	$2.00

Subtotal: $2.00
Shipping: $17.80
Grand Total: $19.80

- Company is called JLCPCB.
- Cost was only $2.00 for 5pcs.
- Shipping costs $17.80
- Build Time is going to be able 3 days.
- Shipping will take about 4-7 business days.

IV. PCB Integration:

Our team plans to implement our PCB design within the next coming weeks. As soon as we receive the PCBs either Gus or Tyler will be able to solder them into our system design. We plan to validate and test the PCBs as soon we can get our hands on them.