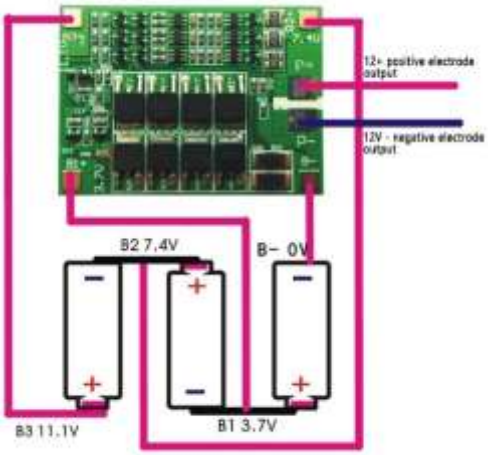
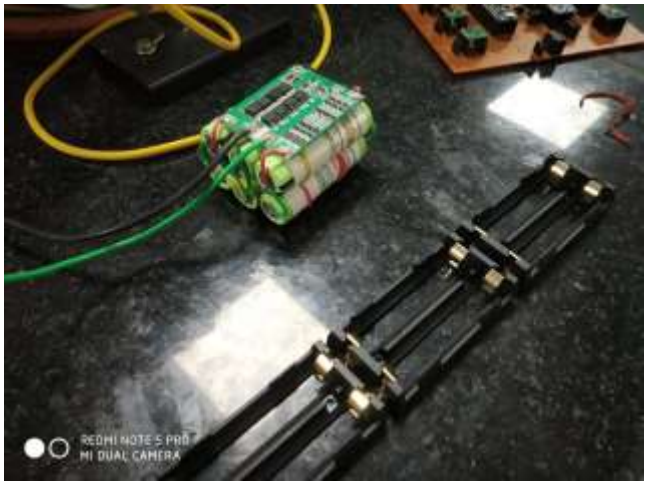
PROSTHETIC ARM:

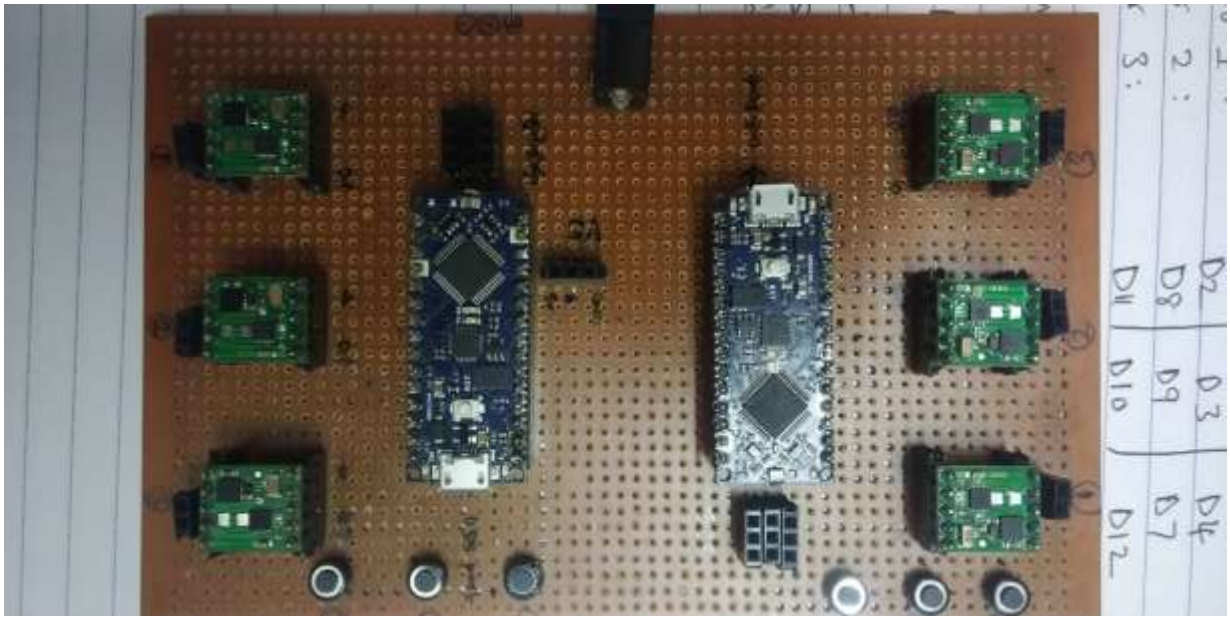
BATTERY SYSTEM

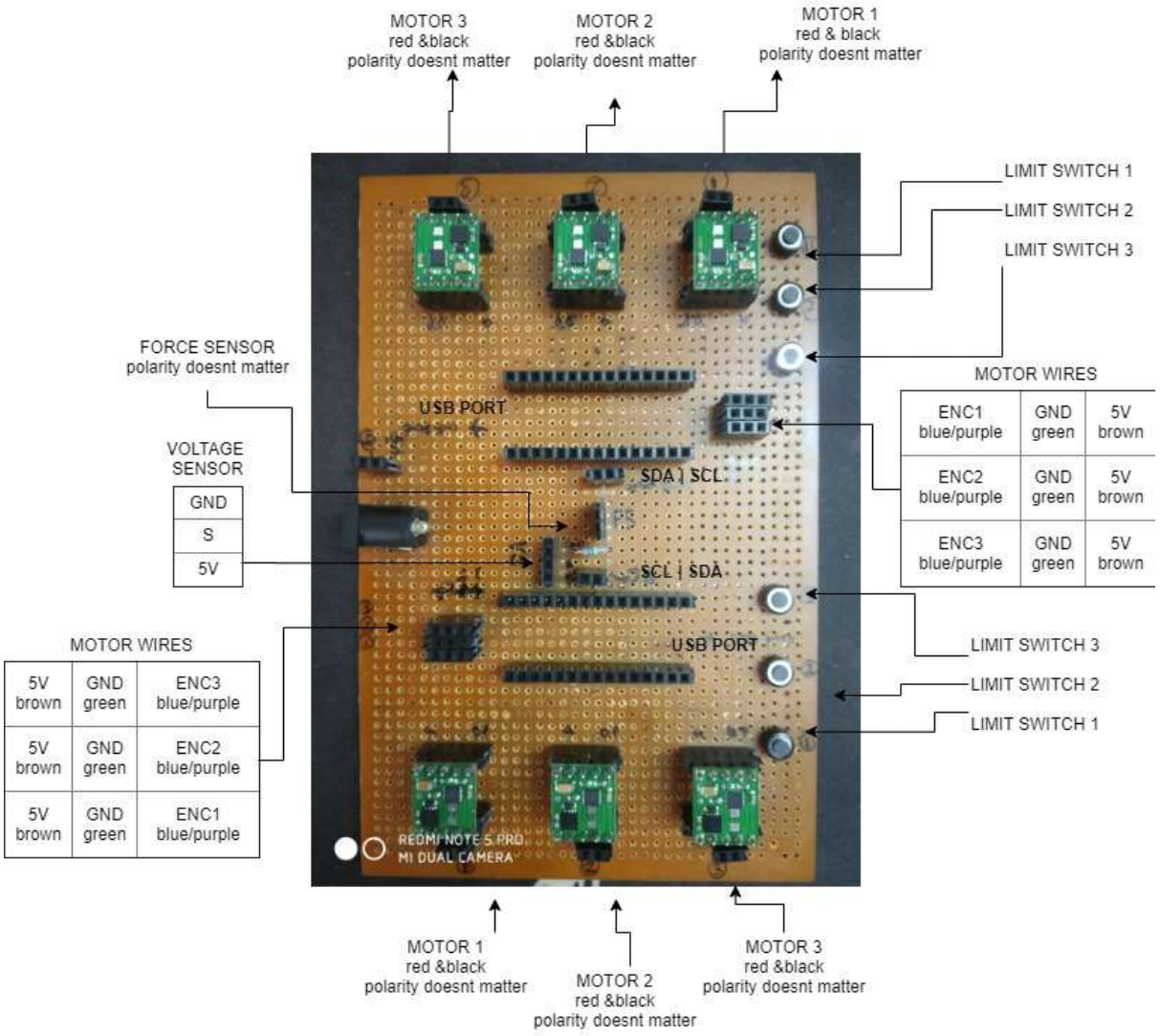




- We used 6 18650 Li-ion cells in the battery pack.
- We have three cells in series and parallel to the other three cells.
- The output voltage of the battery pack will be 12V and the capacity is 6800 mAh.
- The battery will be connected as a series of three cells in two rows, with each cell parallel to each other.

Testing Control Board:



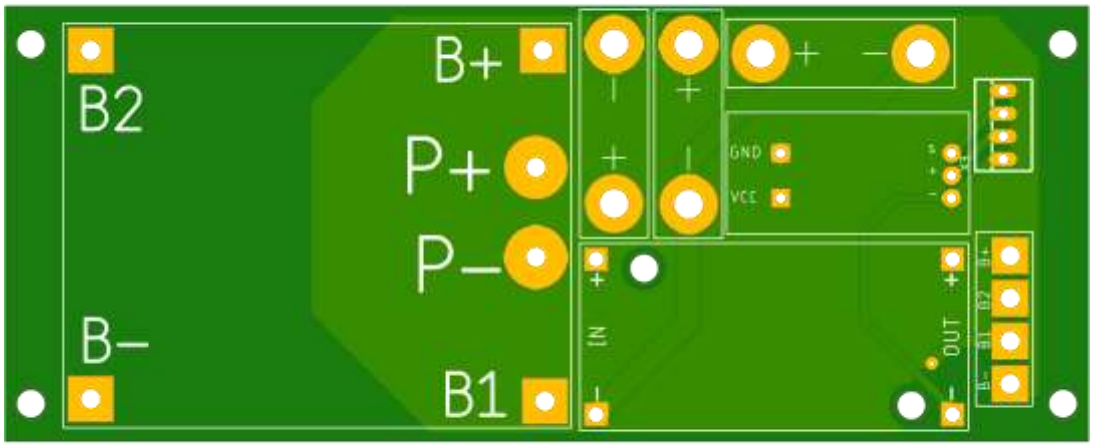


Each Nano every has 3 motors connected namely 1, 2 and 3.
enc1,enc2 and enc3 all correspond to motor 1,2 and 3.
The motors with green resistor soldered is 90rpm(thumb) and with the brown/ceramic resistor is 460rpm(fingers)

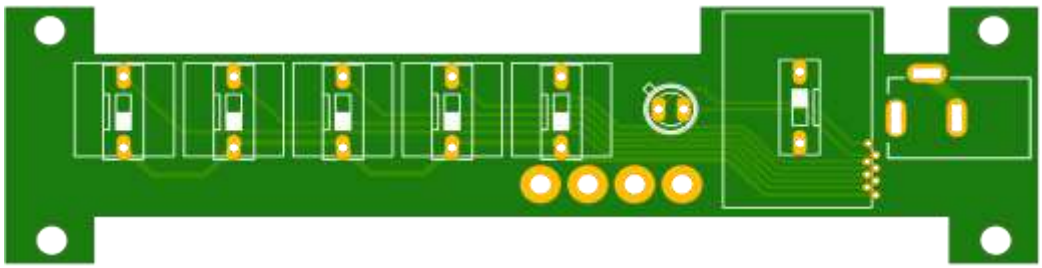
This board was made for the testing the basic system of finger motors to check the functionality and the code. The motors drivers used a pololu MAX14870 and the microcontroller used is an Arduino Nano Every. The project had total of 6 micro DC motors that had to be controlled to mimic the actions of a hand. The project was to have 4 customisable positions of the hand for the user. There was one motor for each finger, except for thumb, which was controlled using two motors. The position of each finger was recorded using the encoder feedback from the motors. This board was designed and soldered by me for testing all test cases and checking the initial 3d printed design of the hand to make sure our system parameter was functional. Once we were satisfied, we moved on to designing the final PCBs, which was more elaborate and compact. Along with the design of the PCB, the code was also finalized.

PCBs:

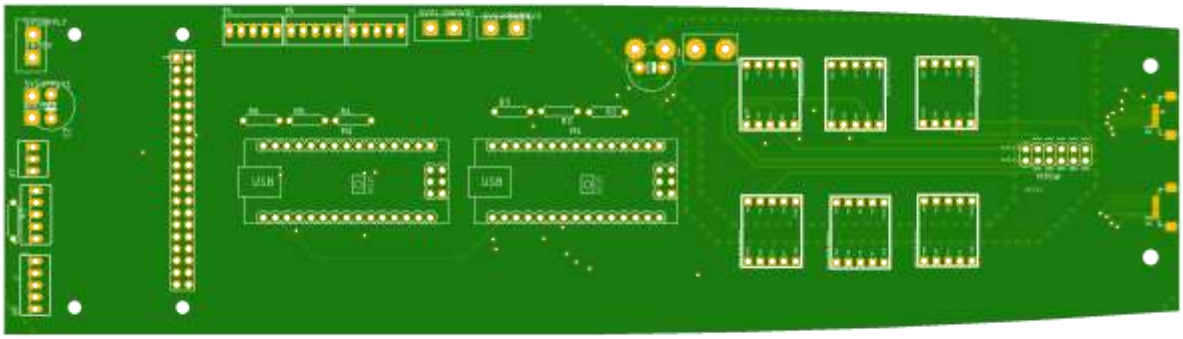
POWER DISTRIBUTION PCB:



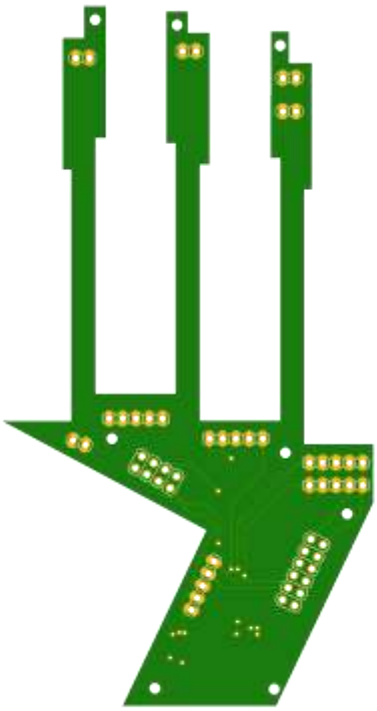
SWITCH PCB:

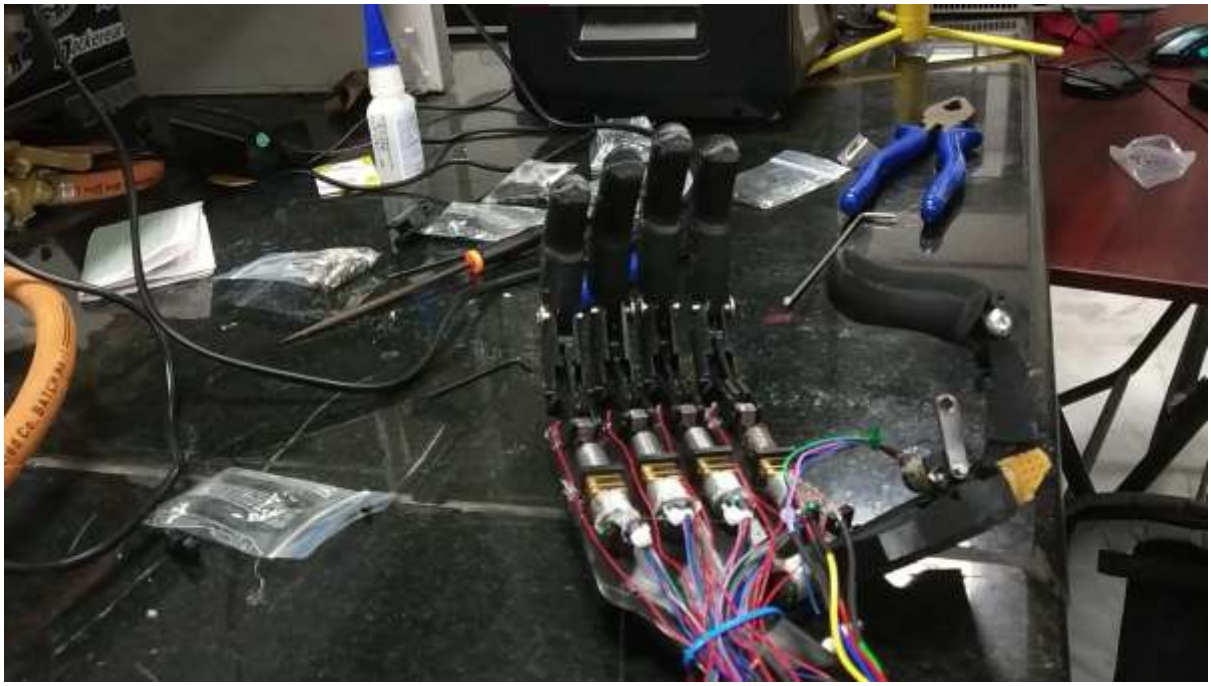


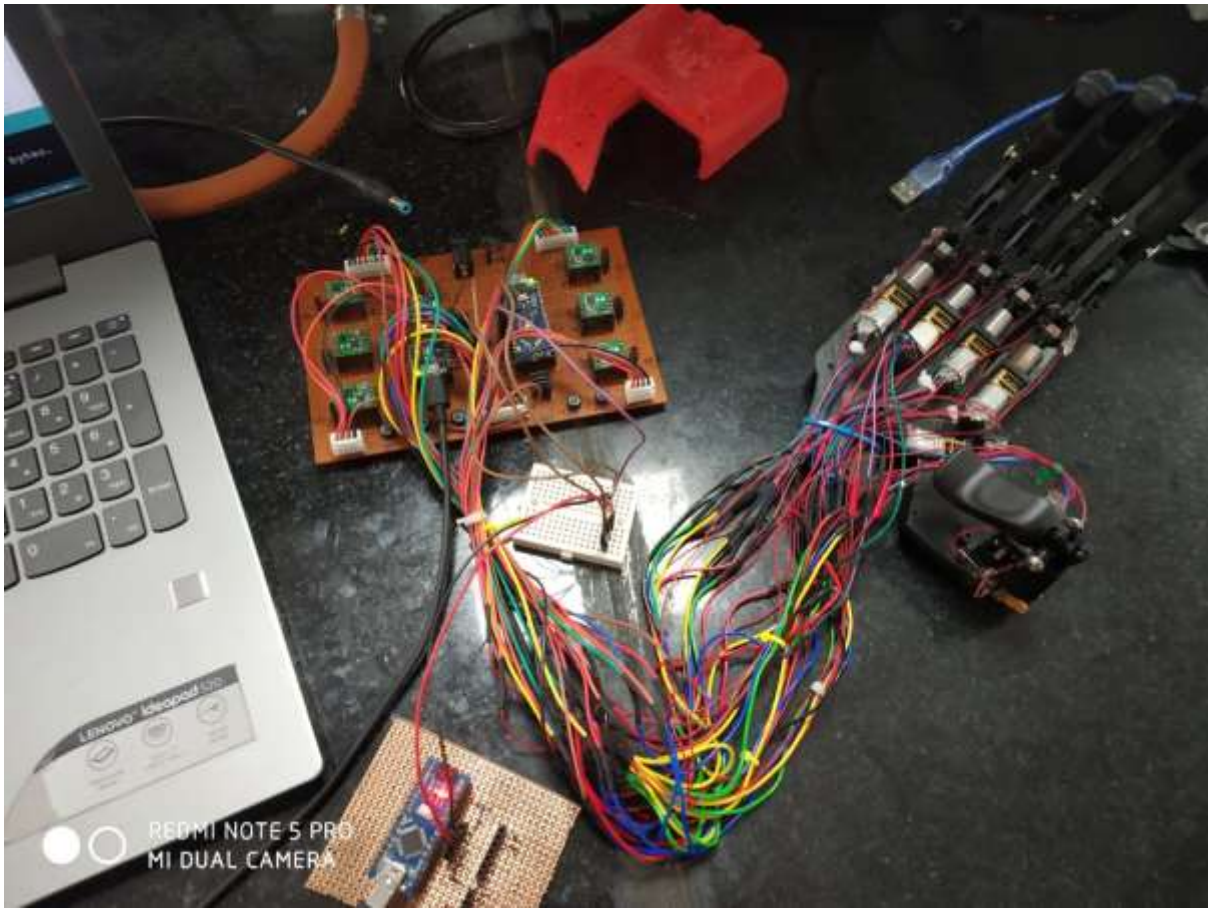
CONTROL BOARD:



PALM BOARD:







The final code and the files of the PCB will not be displayed given that they are confidential and is owned by the company.