

Handsome Technology Inc.

A proof – of – concept prototype for EMG controlled prosthetic arm

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Introduction

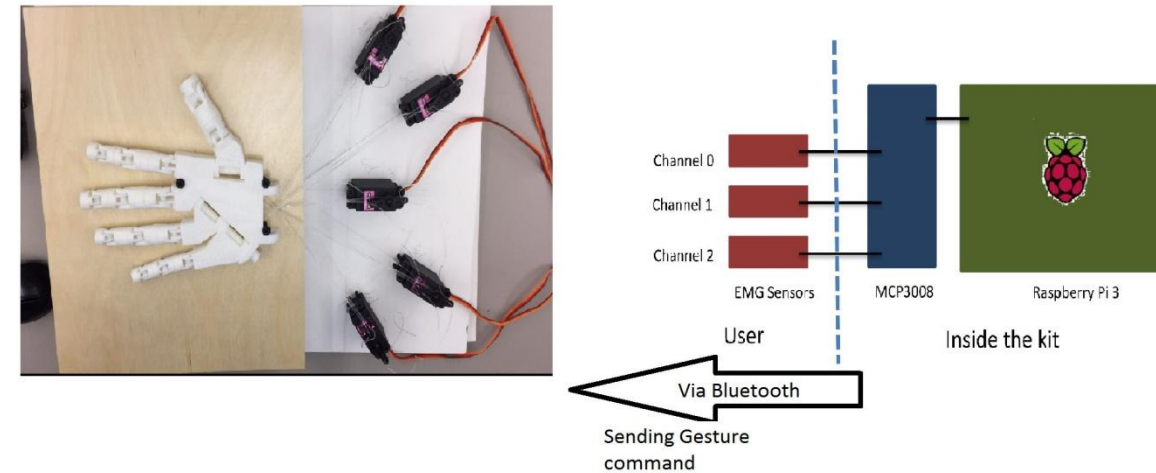
Handsome 1.0 proof-of-concept prototype contains the following two parts:

The sensor kit:

- Collects muscle signals with 3 channels of EMG sensors
- Identifies the gesture
- Notifies the prosthetic hand

The prosthetic hand

- Uses Inmoov open source model
- Responds to the instruction



Product Overview

Future Plans

Optimization :

- Speed up the calculation
- Improve accuracy by sampling more data
- Conceal the circuits

Additional features :

- Reset functions
- Feedback from the prosthetic hand
- Arm and wrist motions
- Relocate objects within certain size and weights

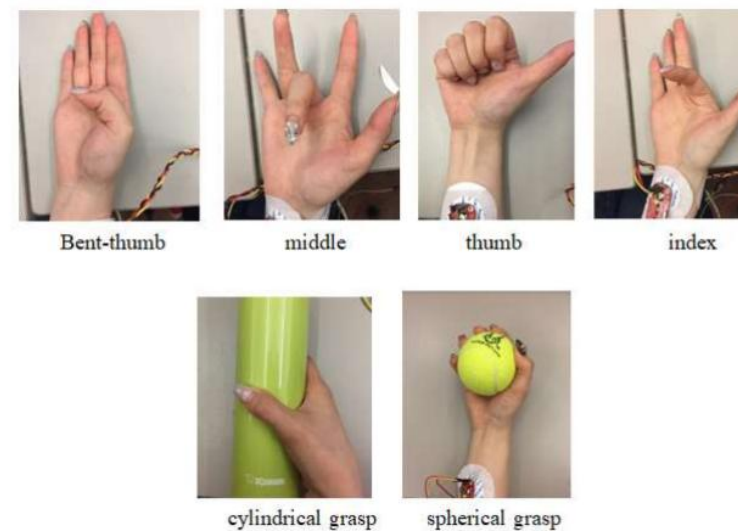
Performance Analysis

Accuracy of each gesture:

- Bent-thumb: 0%
- Middle : 60%
- Thumb : 80%
- Point : 80%
- Cylindrical grasp : 50%
- Spherical grasp : 90%

Delay:

- Calculation delay : 3s
- Mechanical delay : 1s
- Total delay : 4s



Six Gestures

Conclusion

- We have achieved approximately 70% of goals set by the requirement specification
- Future challenges:
 1. To obtain constant stable EMG signals
 2. Noise deduction
 3. Set thresholds
 4. Isolate different signals