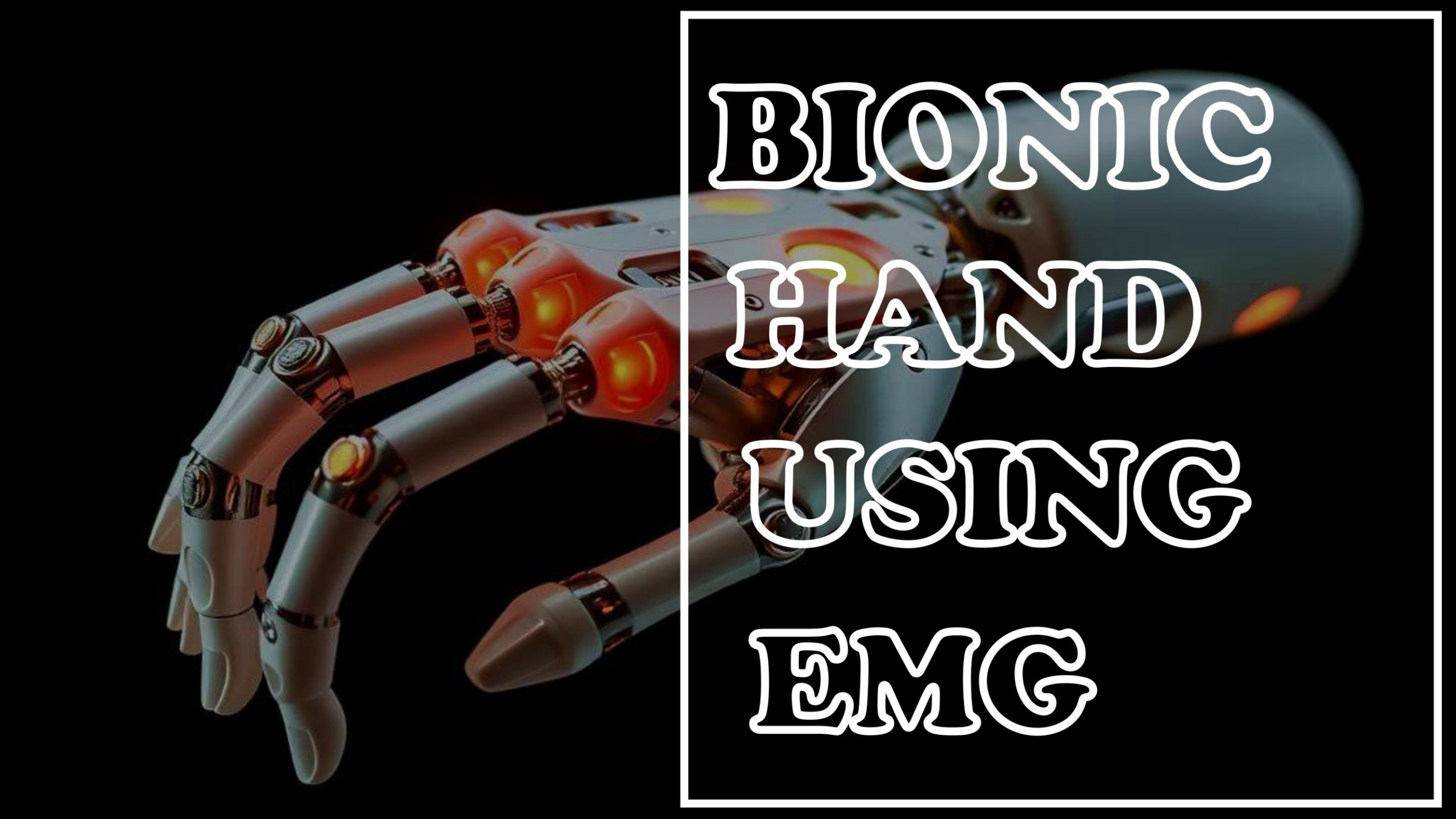

BIONIC
HAND
USING
EMG

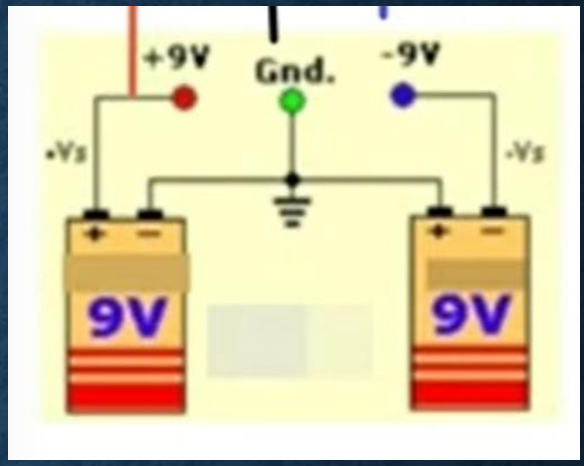
EMG SIGNAL EXTRACTION AND PROCESSING

Components

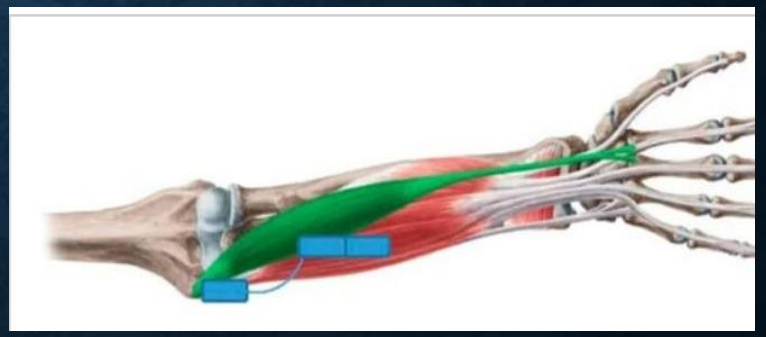
Muscle sensor Module

OR

Myoware Muscle sensor



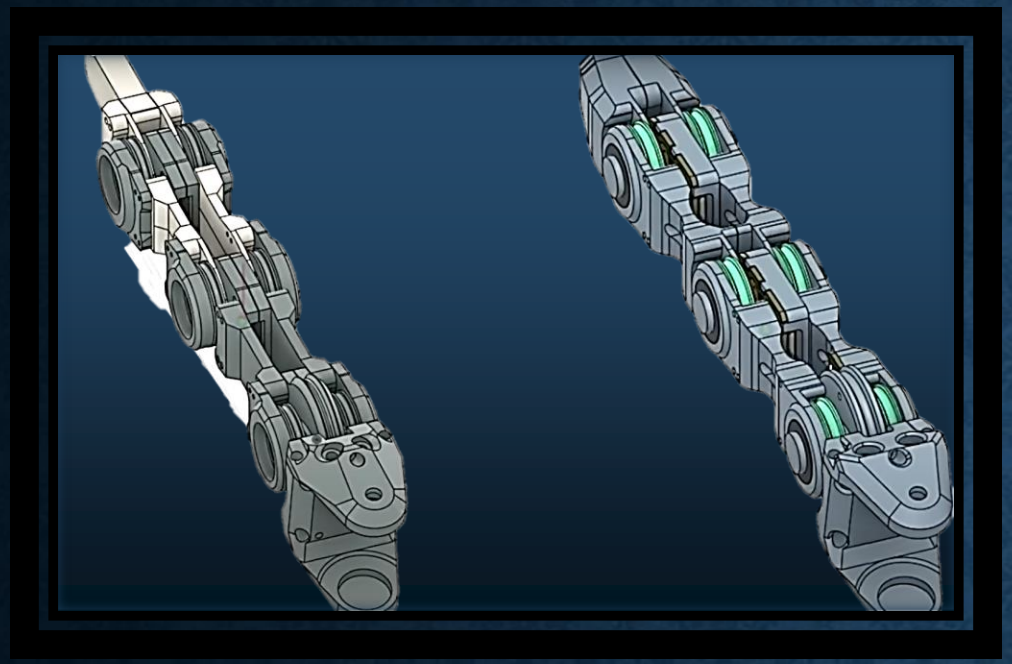
Dual power source

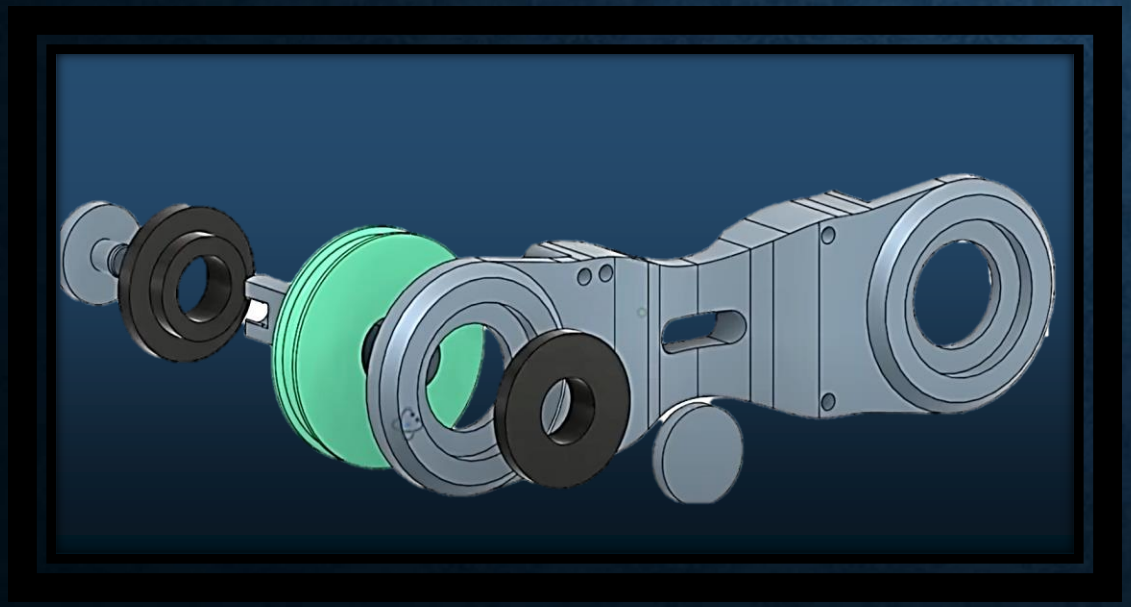


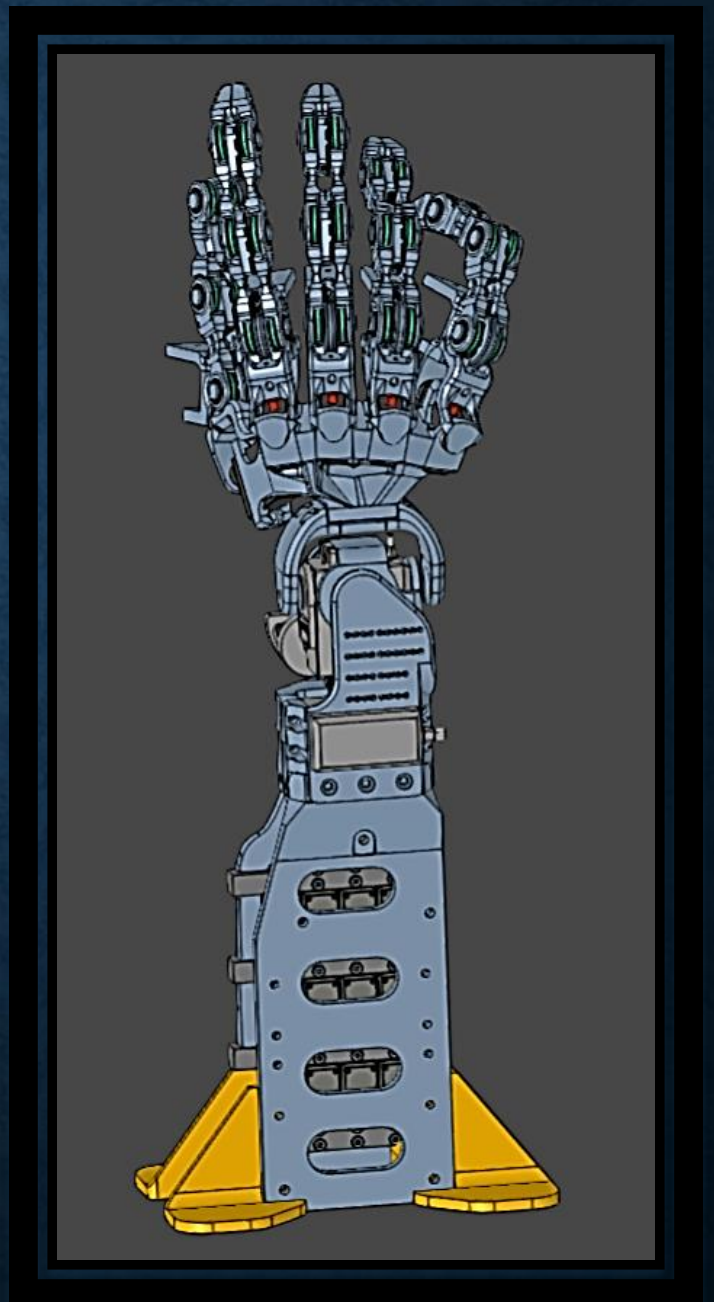
Surface electrodes

MECHATRONIC

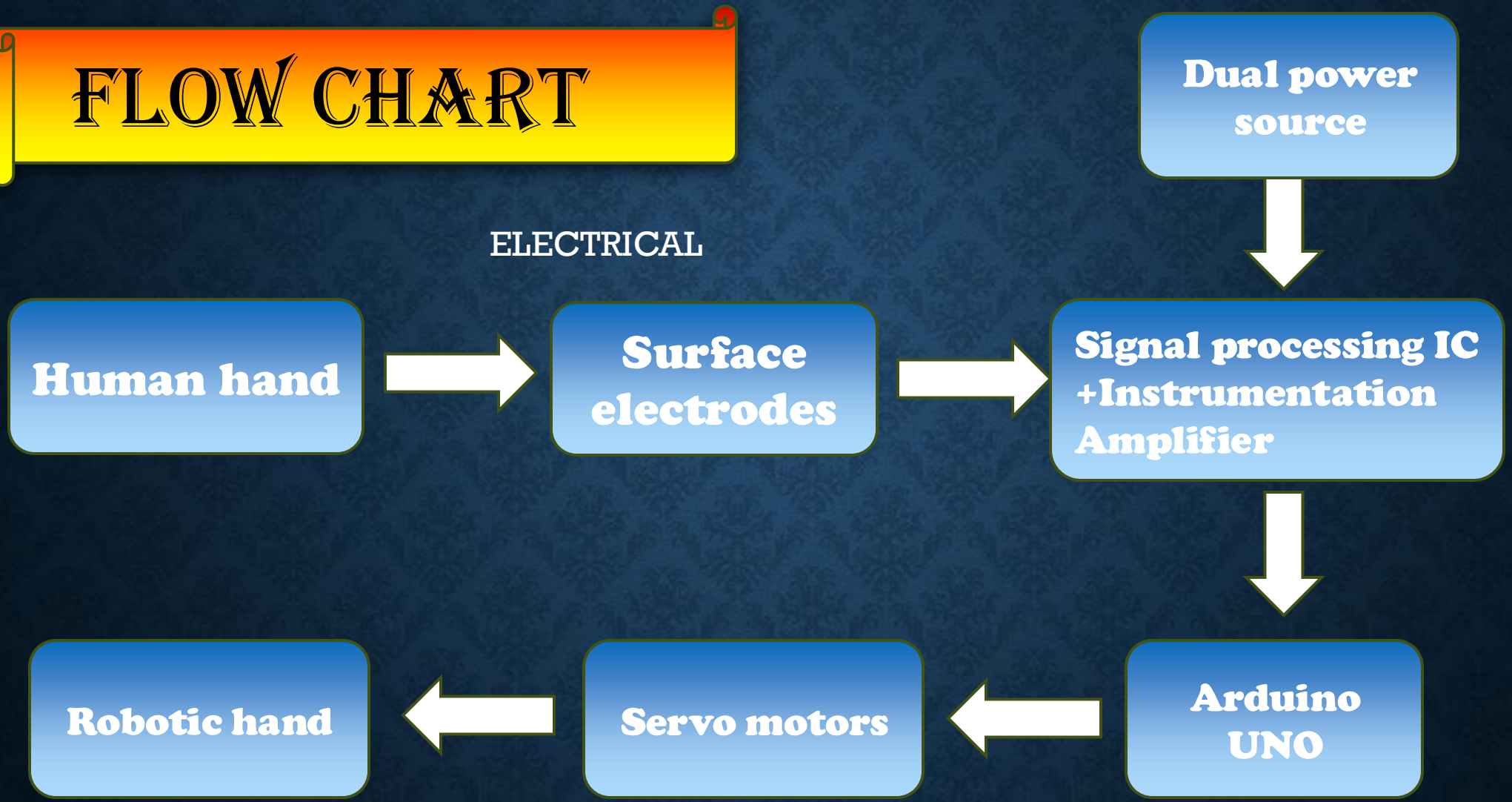
HAND

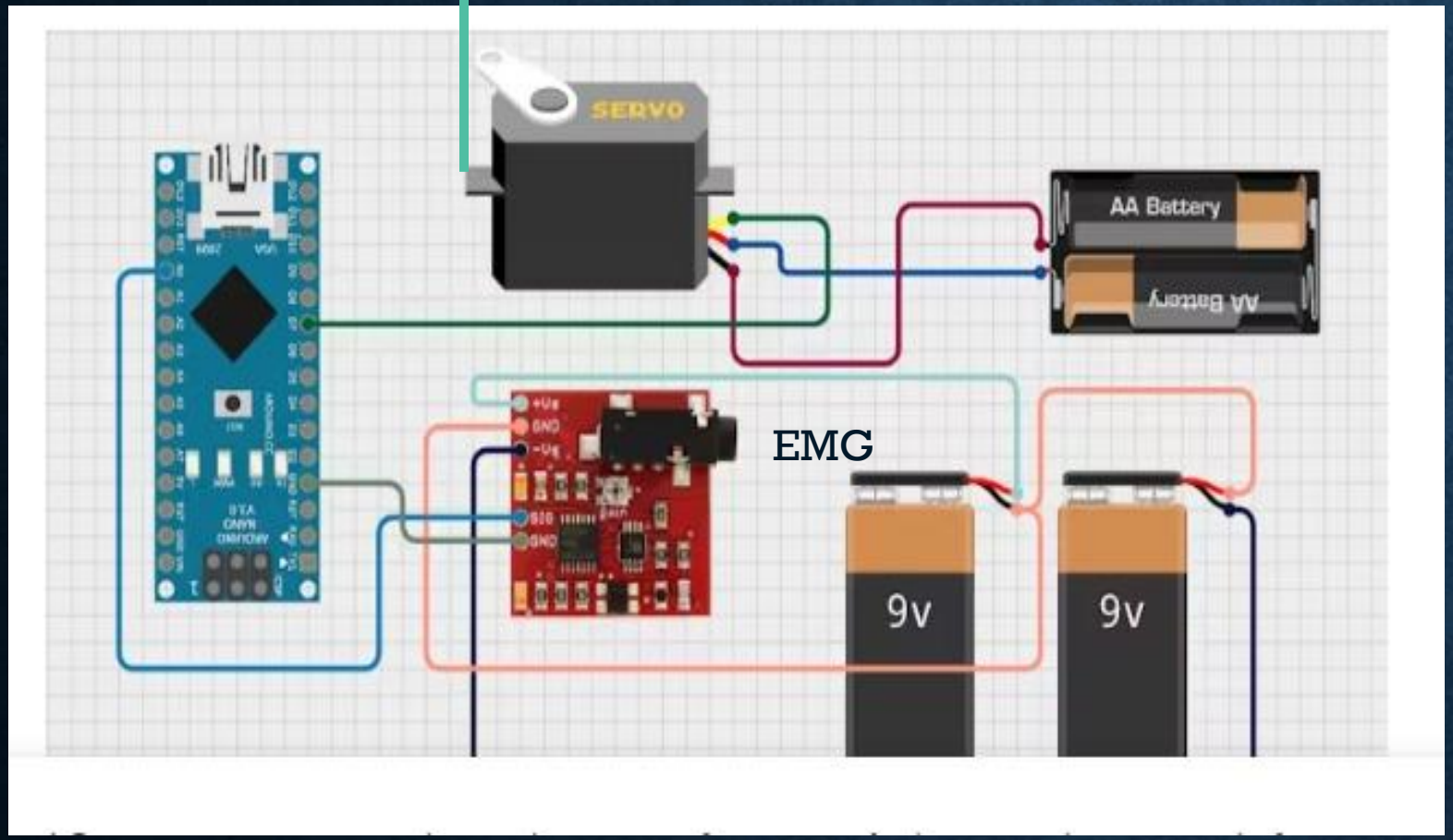






FLOW CHART


Dual power source
ELECTRICAL
Human hand
Surface electrodes
Signal processing IC +Instrumentation Amplifier
Arduino UNO
Servo motors
Robotic hand
MECHANICAL
PROGRAMMING

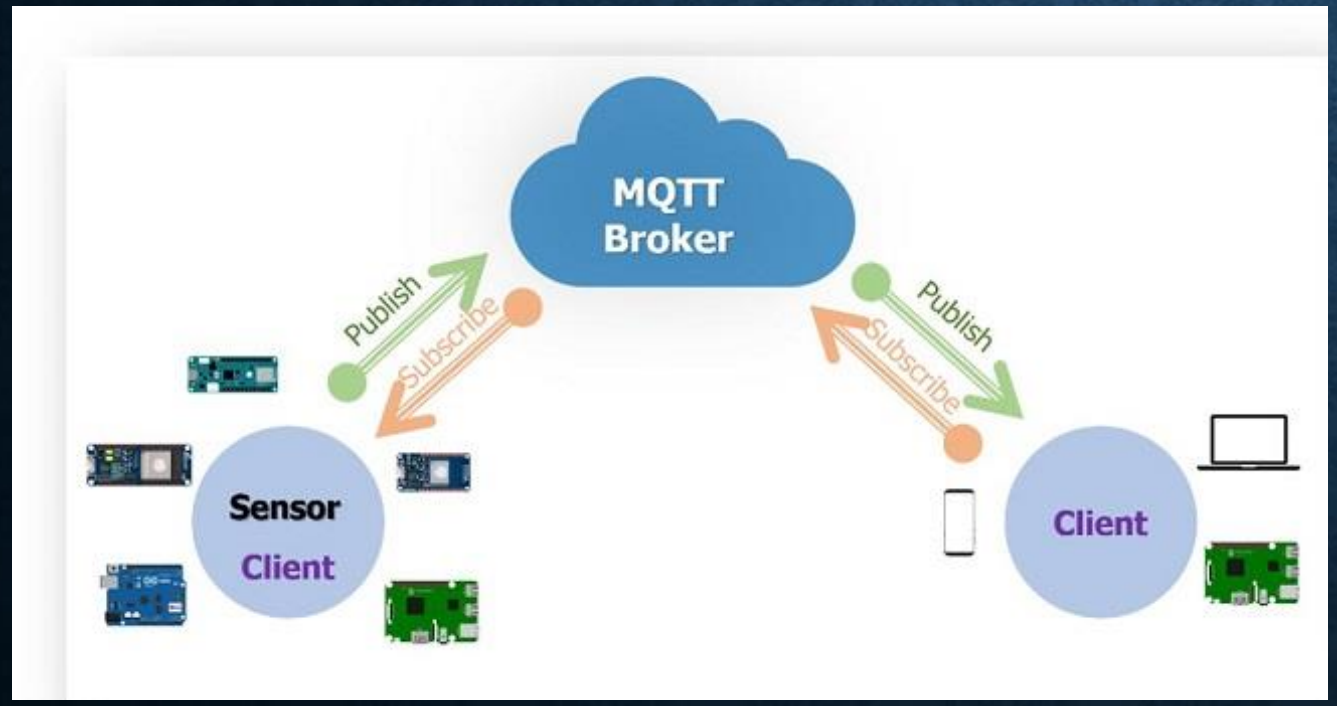


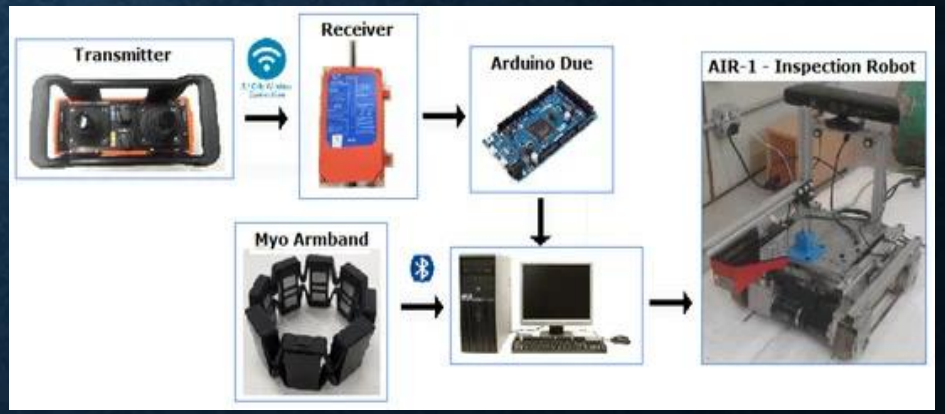
CIRCUIT DIAGRAM OF WIRED EMG BASED BIONIC HAND

WIRELESS TRASNSMISSION OF SIGNAL

MQTT(Message queuing telemetry transport)

Transmitter-Receiver
NRF24L01





FLOW OF SIGNALS/ DATA

Surface Electrodes
(Myo Armware)

Muscle Sensor module

Arduino/ ESP32
(client)

MOSQUITTO/NODE-RED
(Broker)

ESP32 /Node MCU
(client)

servo motors

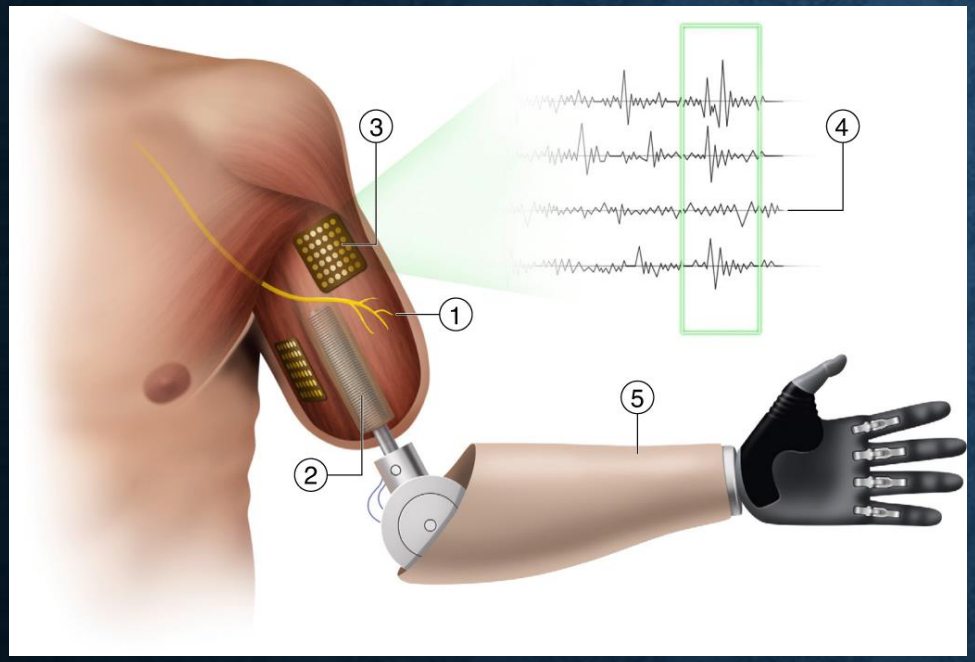
Robotic hand

ALL COMPONENTS AND BUDGET

Components:-

1.Arduino
2.ESP 32 - 2
3.MUSCLE SENSOR ELECTRODES + MODULE
(signal processing IC +Instrumentational amplifier)
4.Electrolytic gel
5. Batteries – DC battery(2 batteries of 9 volts)
and USB Power bank
6.servomotors (5) – LFD01 (180 degree rotation)
7.Electrical components – connectors ,wires(male , female)
8.

APPLICATIONS AND CONCLUSION



Bio-medical application

Along with this application, Bionic hand is widely useful In the field of defence , thus saving the lives of many soldiers, civilians…..

THANK YOU