Myo Functional Description

The Myo consists of 8 EMG sensors, a 9 axis inertial motion unit (IMU,) a microprocessor and a Bluetooth LE transceiver.

The Myo functions in three states, battery charging, sleep mode, waiting for connection and connected.

In battery charging mode all sensors are disabled and microcontroller is in low power mode monitor the charge. The Bluetooth transceiver is disabled. The device is not useable in this mode

In sleep mode the EMG sensors and 6 Axis of the IMU are disabled (leaving only the accelerometer enabled) and the Myo waits for a pre-determined acceleration to change to waiting for connection mode. In this mode Bluetooth is turned off and the microcontroller is in sleep mode.

The MYO uses a Nordic Semiconductor nRF51822 SoC Bluetooth Low-Energy (BLE) chipset. The crystal used is 32MHz. Frequency range of all channels used is 2.402 - 2.480GHz, 4dBm transmit power with GFSK modulation. The antenna is design for a 2.4GHz RF signal to be transmitted and received to and from other Bluetooth Low-Energy devices.

In waiting to connect mode the Bluetooth LE transceiver is enabled and ready accept connections from another device (phone, tablet or computer.) The EMG sensors and the IMU are disabled. In connected mode all the EMG sensors are enabled and all 9 axis of the IMU are enabled. Sensor data is processed by the microcontroller which then transmits data using the Bluetooth transceiver to the connected device.