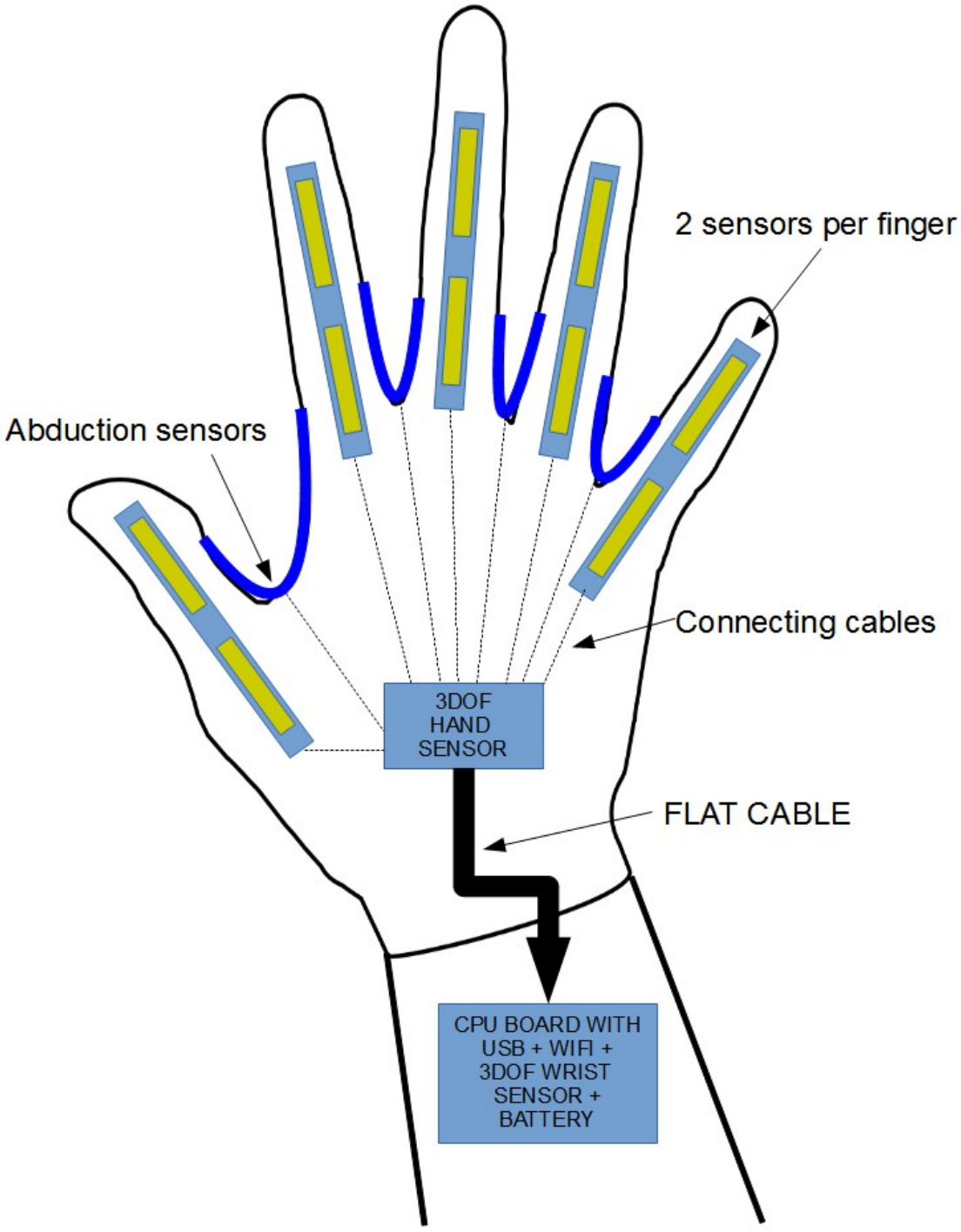
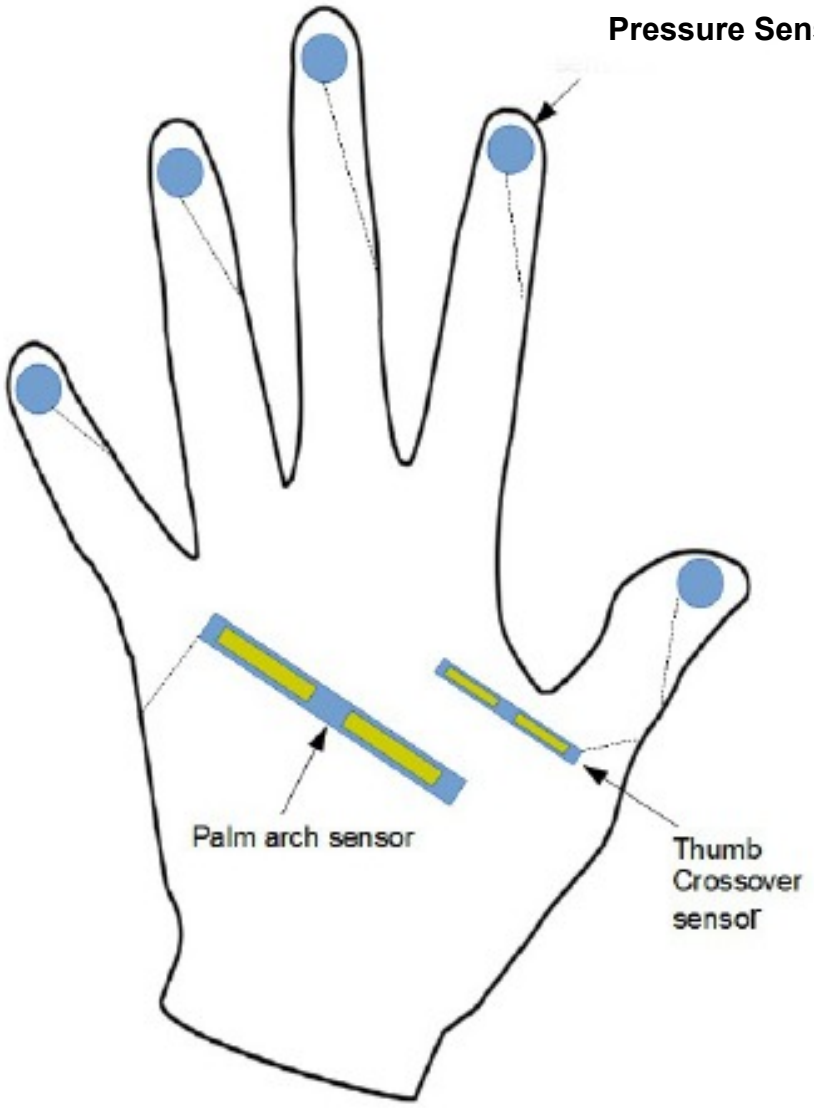
VirtualGlove Specifications

Dataglove description

Sensor placement – TOP



Sensor placement – Bottom



VirtualTouch Option Available:

Vibro-tactile stimulators on each finger of the VirtualGlove system. Each stimulator can be individually programmed to vary the strength of touch sensation.

Hardware description:

Sensor characteristics:

- Very thin resistive bend sensors: less than 0.35mm thickness;
- 12 bit ADC sampling for accurate bend detection;
- 2 Sensors per finger;
- 4 Abduction sensors;
- 1 Palm arch sensor;
- 1 Thumb crossover sensor;
- 5 Pressure sensors, very thin: less than 0.35 thickness;
- Complete 9-DOF orientation sensors (roll, pitch and yaw) for hand orientation and wrist orientation; the sensors mount a 3 axis gyroscope, a 3 axis accelerometer and a 3 axis magnetometer;

CPU Board characteristics:

- 32 MHz CPU board, very low power for battery operated data elaboration and transmission;
- USB connector for wire communication and firmware upgrade;
- On board WiFi module for wireless data communication;
- High performance Lithium-Polymer Battery for long standing operation (up to 4 hours);
- On board elaboration of the hand of wrist orientations;

Software characteristics

- Software management for data glove trimming and data sampling;
- Complete SDK for custom software design;
- Offers an object-oriented model with an accompanying C++ library.
- Provides a general framework for constructing hand-enabled simulations from scratch or for integrating hand-interaction into existing applications.
- Offers full network support. A user can run an application on a host computer while getting device data from another machine, permitting interaction with geographically distributed teams.
- Supplies an open API for model import and interfacing with third-party visualization software. A VRML/Cosmo (SGI Optimizer 1.2) implementation is included.

- Provides significantly improved overall structure with better run-time integrity and more complete error handling.
- Supplies a complete set of open source demonstration applications showing how each of the tool kit features can be used in your development.
- Supports fast production with nearly real-time data capture using 90 Hz calibrated kinematic output.
- Supplies intuitive, easy-to-use controls through the glove calibration interface.
- Provides a familiar interface by displaying calibrated sensor data in the MotionBuilder interface, formatted in both hierarchy and constraint formats.