

## OPERATIONAL DESCRIPTION

The Wireless Finger Controller (WFC) is a portable, battery-powered, Bluetooth-connected human interface device (HID) designed to function exclusively with the ODG R-6 head-worn computer system ("Glasses"). The main circuit component is a Broadcom BCM20730A0KMLG microcontroller (MCU) / Bluetooth radio IC. The RF output of the IC is conditioned with a pi-network and applied to the on-board ceramic chip antenna. The unit is powered by a removable Li-ion battery pack; therefore there is no direct earth connection for the antenna system. The battery pack plugs into a USB charging dongle specially designed for this purpose. The power rail voltage is controlled by means of a 3.3V buck regulator. The user interface consists of two buttons which functionally replicate two of the control buttons on the Glasses. The user interface is further augmented by devices attached to the MCU's I<sup>2</sup>C bus: a combination trackpad/button controller (Touch Mouse), a KXTF9 3-axis accelerometer, an MPU-3050 3-axis gyro, an AK8975B 3-axis magnetometer and a BMP085 pressure/temperature transducer. The system memory is also attached to the I<sup>2</sup>C bus. An RGB LED is used to provide a visual indication of the controller status.

