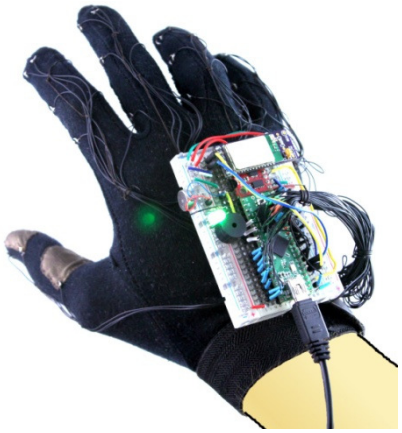
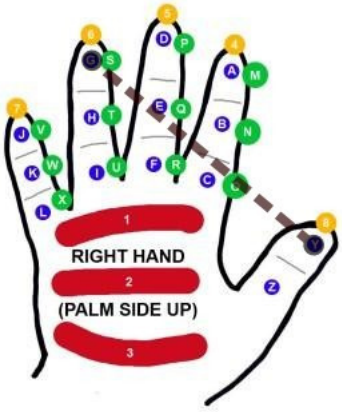
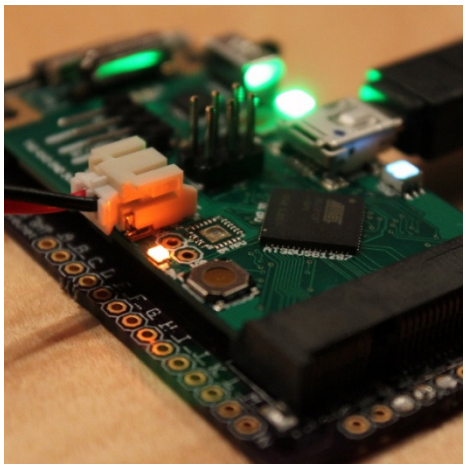
How the Keyglove Works



- Wearable, wireless input device with keyboard and mouse support
- Touching fingers together generates keypresses, motion controls the mouse
- Hundreds of possible combinations
- All behavior is customizable
- Perfect for wearables and gaming

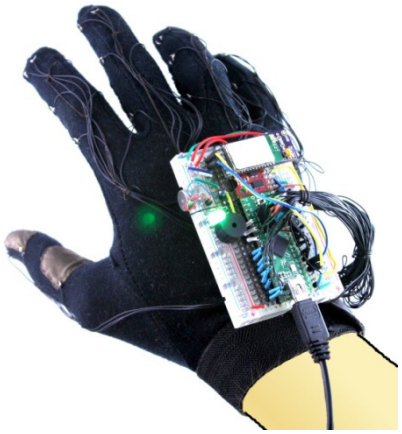


- Compatible with Windows, Mac, & Linux
- Works with desktops, laptops, smartphones, tablets, and even PS3 consoles
- Prototype still under development
- Open-source design specifications
- Target release is Q4 2011



Jeff Rowberg – www.keyglove.net – June 2011

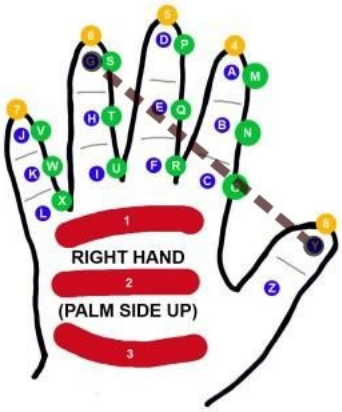
How the Keyglove *Really* Works



Built using established and well-documented components starting with Atmel's AVR series of microcontrollers, the Keyglove combines conductive fabric and digital motion sensors to detect fingertip touches and both linear and rotational hand motions. The main controller module translates this information into computer control signals, which are then sent to the host computer as HID commands or optionally sent over wired or wireless UART port for completely customized behavior.

The glove uses conductive fabric for many of the touch sensors. This fabric is a thin, elastic silver-infused material that is so flexible that it is almost unnoticeable during normal usage. Since no mechanical switches or buttons are involved, only a very light touch is required to trigger an electrical connection, which means less physical effort is required and fewer parts are prone to wear out and require maintenance or replacement.

The touch sensors are mounted on the fingers and palm of the glove in strategic places to allow for the greatest possible number of combinations. Some of these combinations are more physically difficult than others, but most are simple and all are possible. As always, however, you may configure your Keyglove to use only the combinations you are most comfortable with.

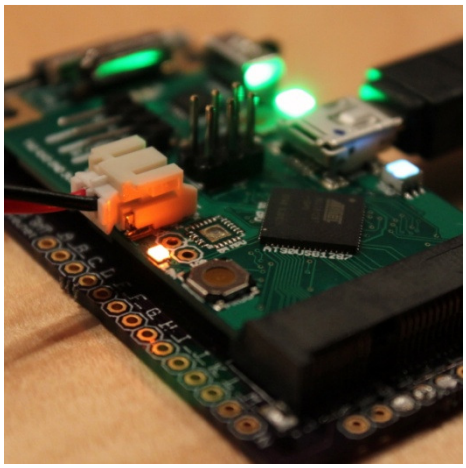


For motion sensing, the glove also has an accelerometer and gyroscope mounted on the back with the controller board. Tilt, gestures, and rotation readings from these sensors are translated individually or collectively into actions on the host device such as mouse control or 3D movement.

Using simple one-to-one touch combinations (connecting one sensor to only one other sensor), there are over 60 ergonomically easy possibilities. Examples of such combinations are the thumb tip to each of the finger tips, and the thumb tip to each middle and lower finger segment. The Keyglove also supports multiple simultaneous touch detection, and even with just two-to-one combinations as well, the number of possibilities skyrockets. There are many hundreds of unique combinations. The default *touchset*, or touch-controlled typing behavior, is based on the same theory that allows court reporters to type as quickly as they do.

Additionally, the placement of the fingertip sensors and six sensors on the thumb allows for a "virtual QWERTY" touch layout configuration. You may decide that a different configuration is preferable, but at least the capability exists to take advantage of existing muscle memory if you are already proficient at touch typing.

The Keyglove is currently still in the prototype phase, so some of the testing hardware is still large and cumbersome. However, the latest revision of the Keyglove's controller board (shown here) is just over two inches long and only a little over an inch wide, designed to be removable and upgradeable at any time while fitting comfortably on the back of your hand. Although most people will probably just use the official board as-is, it is reprogrammable using open source utilities should you wish to modify it, and you can even replace the board completely with something of your own design. The controller board's design specifications and source files will be made available under an open license once it is completed.



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