



Robotic Finger Sensor v2

SPX-14687 ROHS

Does your robot crush objects with its hulkingly strong grip? Give your robotic hand or claw a better sense of touch with the Robotic Finger Sensor. This new version adds pressure sensing so now you can know how hard you're gripping!

The Robotic Finger Sensor (RFS) uses a unique combination of infrared distance sensing, pressure sensing, optical encapsulant, and data filtering to detect extremely light touches. Additionally, the silicon covering is squishy, giving the sensor increased grip (friction).

How does it work? IR light from the VCNL4040 distance sensor dramatically scatters when an object like a white coffee cup or human skin comes in contact with the face of the sensor. Once contact has been made the LPS25HB pressure sensor is able to quantitatively detect how hard the sensor is pressing against the surface. We've written fully featured Arduino libraries for the VCNL4040 and LPS25HB sensors. The example firmware demonstrates how to capture this signal and turn it into 'Touch' and 'Release' events.

The Robotic Finger Sensor ships fully encapsulated. The additional 'bare board' photos are there only to show the detail of the sensors inside the clear encapsulant.

The RFS requires 3.3V and communicates over I²C. The connector is compatible with our Qwiic system. The [Qwiic system](#) enables fast and solderless connection between popular platforms and various sensors and actuators. You can read more about the Qwiic system [here](#). We carry [200mm](#), [100mm](#), [50mm](#), and [breadboard friendly](#) Qwiic cables.

The Robotic Finger Sensor includes a complimentary [breadboard friendly](#) Qwiic cable. The board has two small [2-56 screw](#) holes for mounting. Hot glue also works well.

This is a collaboration with Professor [Nikolaus Correll](#) and Professor [Jacob Segil](#) at CU Boulder. A portion of this sale is given back to Dr. Correll's lab for the continued development of innovative robotic components.

The Robotic Finger Sensor is the first piece of autonomous robotic control. To see what's possible when you couple vision systems with touch capability, have a look at [full-stack autonomous manipulation](#) using this sensor with [ROS](#). CU is working on an impressive [robotic perception stack](#) to make this easier for the beginner.

What if I need more than one? The sensor has only one I²C address so putting multiple on the bus will cause collisions. Luckily, we've got a mux for that! The [Qwiic Mux](#) allows up to 4 sensors to be simultaneously connected with the ability to daisychain up to 8 muxes. 32 fingers is a big gripper! Control examples are available [here](#).

We do not plan to regularly carry SparkX products so get them while they're hot!

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Weight: 1.6g