Bangalore

Capacitive Sensing with Arduino

08.08.2014

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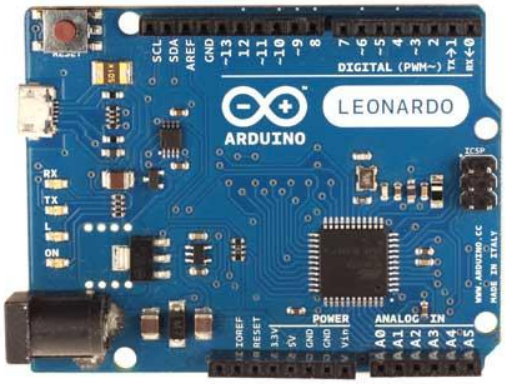
Touch and Proximity Detection



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Demo !

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Touch and Proximity Detection

Capacitive Touch Sensing

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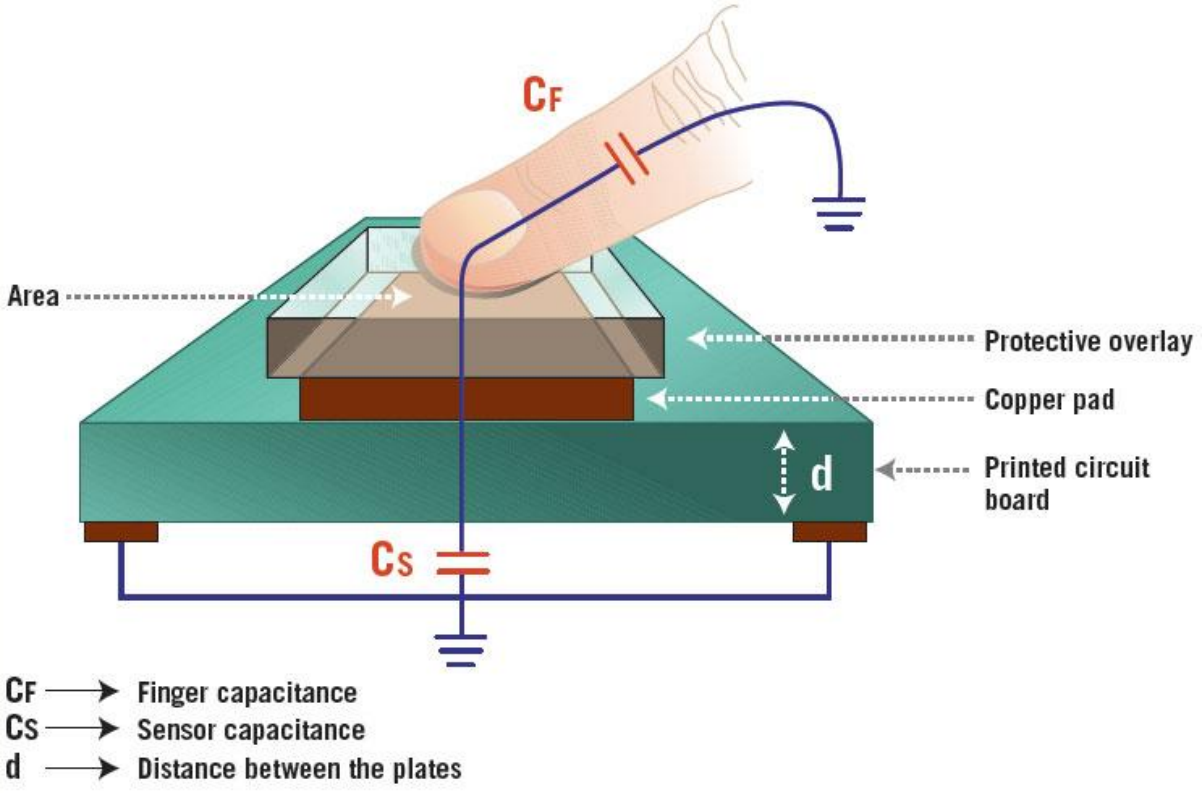
Touch and Proximity Detection

The principles of capacitive touch sensing.



Bangalore Capacitive Touch

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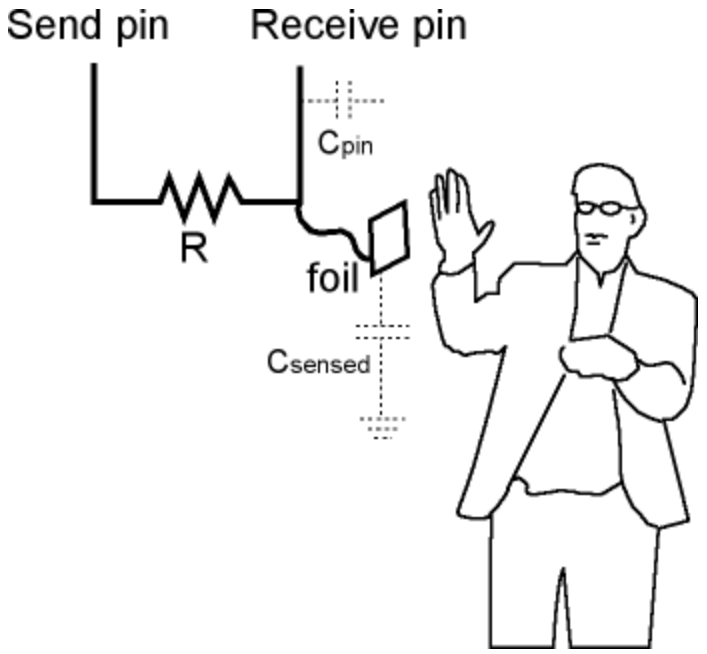
- ✓Body acts as capacitor
- ✓Bringing your body close changes capacitance
- ✓Send pin flips state, sends charge to receive pin
- ✓t=RC
- ✓C changes, time taken for receive pin to flip state changes



Proximity – Better sensing

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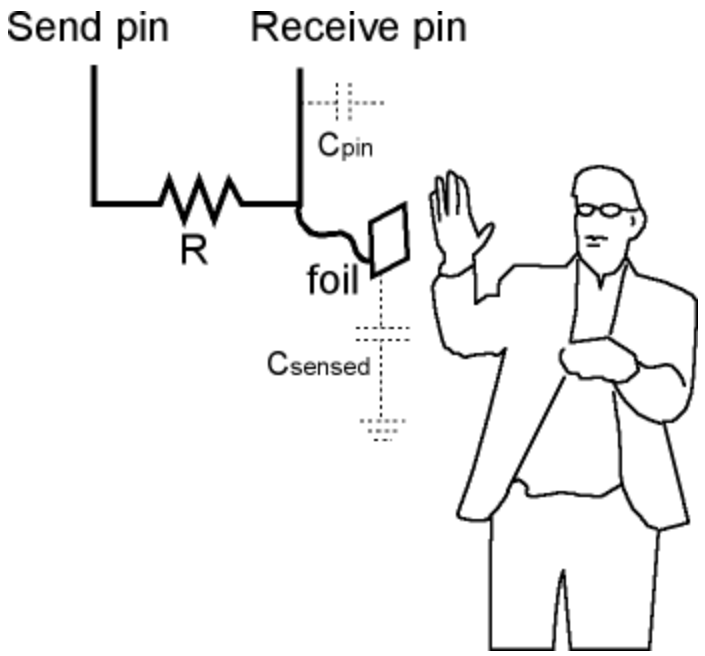
- ✓Stronger Charging current
- ✓Longer charging time
- ✓Greater surface area of electrodes
- ✓More electrodes
- ✓Better dielectric material
- ✓Using a ground plane



Bangalore Capacitive Touch – MPR121

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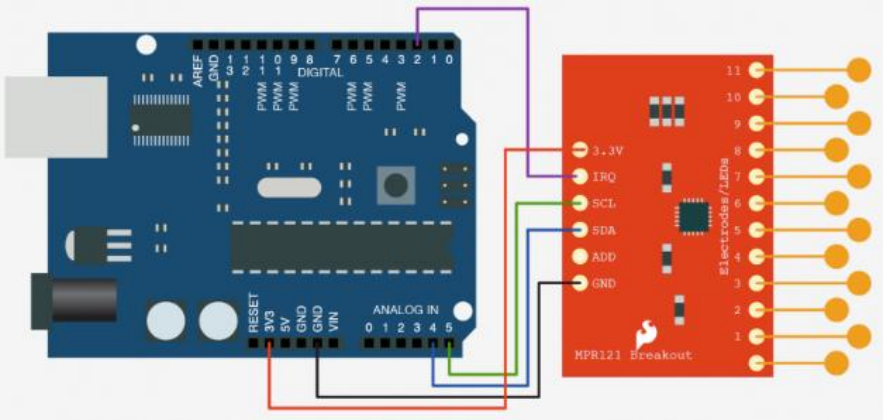
- ✓12 electrodes, 12 touch inputs
- ✓Combine all electrodes for greater sensitivity and proximity sensing
- ✓Two filter levels
- ✓Configure and read registers over I2C
- ✓Interrupt when data is ready



Resources

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✓Python Code
https://github.com/Arduino-IN/demos/tree/master/TouchSensing/Arduino-Code

✓Capacitive Sensor library
http://playground.arduino.cc/Main/CapacitiveSensor

✓MPR121 datasheets and application notes
http://www.freescale.com/webapp/sps/site/prod_summary.jsp?code=MPR121&fpsp=1&tab=Documentation_Tab

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Thank You !