(College logo)



**Project synopsis on**

**Capacitive touch mapping**

Under taken by:

**WORKING PRINCIPLE**

**Capacitive Sensing:**

Capacitive touch sensing is a way of human touch sensing, that requires little or no force to activate. It may be used to sense human touch through more than a quarter of an inch of plastic, wood, ceramic or other insulating material (not any kind of metal though), enabling the sensor to be completely visually concealed.

**Why Capacitive touch?**

* Each touch sensor requires only one wire connected to it.
* Can be concealed under any nonmetallic material.
* Can be easily used in place of a button.
* Can detect a hand from a few inches away, if required.
* Very inexpensive.

**How does it work?**

The sensor plate and your body forms a capacitor. We know that a capacitor stores charge. The more its capacitance, the more charge it can store. The capacitance of this capacitive touch sensor depends on how close your hand is to the plate.

**What does the Arduino do?**

Basically the arduino measures how much time the capacitor (i.e the touch sensor) takes to charge, giving it an estimate of the capacitance. The capacitance may be very small, nevertheless the Arduino measures it with accuracy. One way of using capacitive touch in a project is to use the CapSense library. For the Capsense library, the arduino uses one send pin and any number of receive pins required. A receive pin is connected to the send pin via a medium to high value resistor. Here are some guidelines for resistors but be sure to experiment for a desired response.

We will use a 1 megohm resistor (or less maybe) for absolute touch to activate.

**Touch Mapping using Capacitive touch**

To implement a matrix that can map the touch of a human hand or foots, we’ll create touch pixels going to the size of ¼ of a centimeter. There will be matrix of all these pixels spread into the size of 6 X 6 inches. These distribution will be used with capacitive touch sensing and later used for creating a pattern using the permutations and combination provided by the pixel matrix.