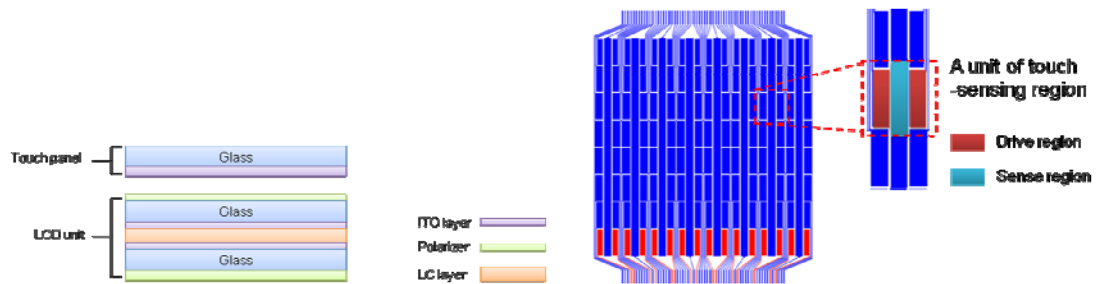


Simple Projected Capacitive Multi-touch Panel

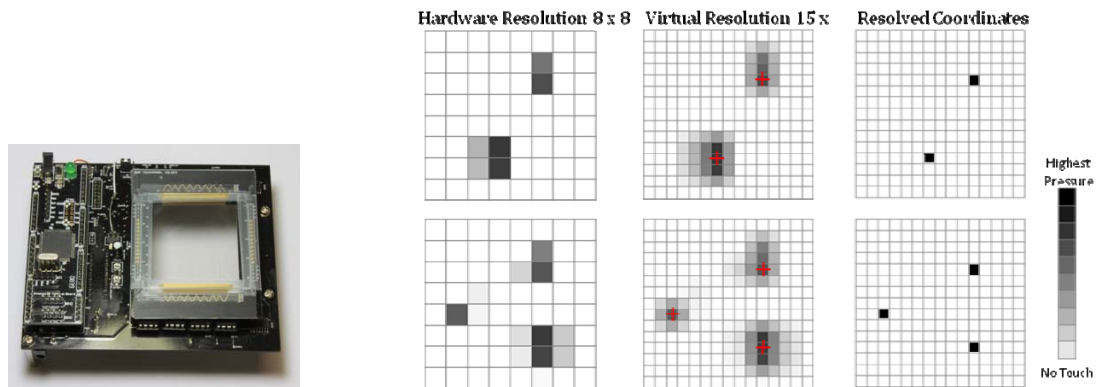
Tsz-Kin Ho, Chung-Yung Lee, Man-Chun Tseng and Hoi-Sing Kwok

Center for Display Research, Department of Electrical and Electronic Engineering
 Hong Kong University of Science and Technology
 Clear Water Bay, Kowloon, Hong Kong, Cniha

A simple projected capacitive touch panel is developed. Such touch panel is capable of detecting multi-point touch event. The device consists of a single piece of patterned transparent ITO glass and a sensing circuitry. The applied driving signal will be projected onto the sensing node in the form of electric field. Then, the charge sensing circuitry is used for sensing the mutual capacitance between the driving and sensing node. This design provides a simple and low cost alternative to capacitive multi-touch panel design.



Our proposed touch panel is simply a glass with ITO pattern. The approach we used is mutual-capacitive. Therefore, we have drive line and sense line in our design. For application like keypad or controller device where the touch region is well-defined, direct-driving approach can be adopted. This kind of sensor can be like a driving electrode surrounding a sensing electrode. For multiplexing design, a unit of touch sensing region can be like this. First, we drive a row, gather eight data from sense lines. Repeat these process eight times, after all, we will have an image of 64 data from the whole panel.



Bilinear interpolation is applied to enhance the resolution by twice. We can further estimate the touch location by analyzing the area and the depth of hotspots. Multiple simultaneous touches can be resolved accurately.