A cost-effective pen touchscreen overlay

# Abstract

Touch interfaces are becoming increasingly popular as tangible user interfaces (TUIs) in the modern era of technology but they prove to be so expensive and inapplicable to cover larger area such as classroom writing board. Another problem with these technologies is the durability. A little damage in the traditional capacitive touchscreen may result into permanent damage of the whole touch interface. This paper introduces technology that is cost effective, less prone to damage and provides much similar look and feel of a traditional board marker.

# Introduction

There are many virtual touch interfaces introduced and available in the market such as Diamond Touch Systems [1] which includes a projector, an electrode-based touch interface that is only implementable on a specialized touchable. This system is more prone to occlusion, less user friendly and has cost overhead. Other touch interface called HoloWall [2], infrared illuminator-based touchscreen [3] have larger error rate because it considers every object touching to its surface. The limitations to this type of systems are proper setup needs video cameras and illuminators to be placed front or back of the touch overlay leaving them being less compact. Another touchscreen system known as uTouch [4] which mainly work by estimating the actual touch by identifying skin color using two cameras. This means it only works when user is interacting with bare hands and requires high color resolution cameras. SmartTouch [5] uses a single video camera in front of LCD screens which makes it more liable to occlusion. It is not applicable on larger screens such as video projected screens.

The limitations in the current touch interface systems were the motivation to develop a touch interface system. It is cost effective, reliable, accurate, more durable, user friendly, compact and adaptive to environment.

# References

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