

**DESIGN AND IMPLEMENTATION OF MULTITOUCH
ALGORITHM USING DEPTH CAMERA**

By

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.



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ABSTRACT

DESIGN AND IMPLEMENTATION OF MULTITOUC TABLETOP

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Touchscreens have become a dominant user interface of everyday life. The research purpose is to develop a design algorithm to recover multi touch on the surface. This research uses *Kinect Xbox 360* as sensor to sense touch on the surface. The research can be applied in development of a new creative application that utilizes multi touch input. Using *Microsoft Kinect SDK* to get pixel data from every frame captured, and then process the image to sense touch based on depth data every pixel. After sensing touch process is completed, *AForge* library is used to extract touch points in the scene by using connected component labeling class. There is a scenario to test accuracy of extracted touch coordinate. An image is prepared with several dots, dots hold fix coordinate calculated by *Adobe Photoshop*, then touch points directed to the dots. The research result comes with deviation of x axis and y axis coordinate. X axis coordinate has 2.8 deviation while Y axis coordinate has 0.8 deviation.

Keywords: *Tabletop, Touch Surface, Depth Camera, Depth Sensing, Microsoft Kinect SDK, AForge, C#, .NET*



DEDICATION

I dedicate this work to my family, friends, and lecturers, which always support and encouraging me.



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