

**REAL TIME VIRTUAL FITTING ROOM WITH FAST  
RENDERING**

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## DECLARATION

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Dr. Indika Perera

Date

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## ABSTRACT

With the rapid growth of the technology, virtual try-on applications have become quite popular in past few years because they allow users to see themselves wearing different garments without the effort of changing them physically. Due to this, which helps users to quickly decide whether a selected garment is suited or not in small amount of time and also allows retail shoppers to sell more in less time with a high customer satisfaction. The objective of the present research is to create a virtual fitting room with fast rendering that realistically reflects the appearance and behavior of the garment.

Presently, there are several commercial virtual try on systems, such as fitnect, Zugar...etc. can be seen in the market with different price ranges and variants, namely web cam based, Kinect based, 3D avatar based, photograph based ...etc. can be listed. But yet there are lots of improvement are needed from the aspect of performance, graphics, real time processing, realistic user experience ...etc. Therefore this research was inspired to full fill those requirements.

The research mainly focused on how to extract users' specific body parts from the video streams which are provided by the Microsoft kinetic, then body customization and creation, skin tone matching , superimposing of garments on to the user which is extracted from the video stream and speed up the rendering process to create more realistic virtual fitting room system.

Finally, Evaluation of the presented virtual system was done by seven independent evaluators. They were asked to go through the whole system and answer few questions. Each these questions carried a rating from 1-5 and categorized into two main sections, respectively interface evaluation and functionality evaluation. Both of the sections had good evaluation results by proving research has full filled its intended purpose with the overall success rate of 87.53%.

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## LIST OF ABBREVIATIONS

Abbreviation	Description
NI	Natural Interaction
PCL	Point Cloud Library
VFR	Virtual fitting room
AR	Augmented Reality
VR	Virtual reality
ASM	Active shape model
API	Application Programming Interface
SDK	Software Development Kit
RGB	Red, Green and Blue
NUI	Natural User Interface
IR	Infrared
TOF	Time-of-Flight
GPU	Graphical Processing unit
PCA	Principal Component Analysis
MVVM	Model –View-ViewModel
WPF	Windows Presentation Foundation
API	Application Programming Interface