Visualizing Products in E—Commerce with Augmented Reality
Project Code: MWH5-12

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Introduction
In this project, we wanted to achieve a solution for visualizing merchandise in 3D digital format, especially wearables like watches, bracelets, on human body’s wrists with the use of augmented reality. We used a bracelets-like paper marker on our wrists as the marker and by processing the video frames captured by the camera, we identify how the wearables should look like and to be shown on the video frames. Projection of the wearables involved fine tuning of the pose obtained from the marker for the sake of lively presentation on the human wrists.

Aims and Objectives
- To develop an Augmented Reality application for users to try out wearables, by displaying the merchandise on a ring-shaped AR marker.
- To find out a simple and easy way for tracking a curved pattern on the marker in a video stream and project a 3D model on the wearer’s wrists to visualize the merchandise.

Overview of the Project

Methodology
Here is a flow chart explaining the input output of our chosen algorithm, the following chapters will explain these with further details.

Result

Deliverable
The final result is a Matlab Desktop program that can detect, recognize and overlay 3D model on user’s wrists with an acceptable visual appearance.

Furthermore, a port and improvement to OpenCV is also in progress. This will allow the desktop software to be run in compiled program which will be much faster than Matlab script. This will also allow easy porting to mobile platforms including but not limited to Android, iOS.

Application in Business
Online stores can easily create an Augmented Reality program that can display how the goods will look like on the buyers’ hand, thus enhancing the buying experience and help buyers to make informed decision when buying.

Customers can just print out the marker easily at home and try out different wearable at home. The system can be expanded into clothing as well with more sophisticated tracking and detecting algorithms.