ISSN(Online): 2320-9801
ISSN (Print): 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Website: www.ijircce.com

Vol. 5, Issue 9, September 2017

Android Shopping App using Augmented Reality

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ABSTRACT: In this paper, I am proposing an online shopping application for Sunglasses using Augmented Reality (AR). The massive technological advancements around the world have created challenging competition among the companies where each company tries to attract the customers using different marketing strategies. AR is one such technique which is widely gaining popularity. AR is view of a physical real-world environment which is augmented by computer-generated information.

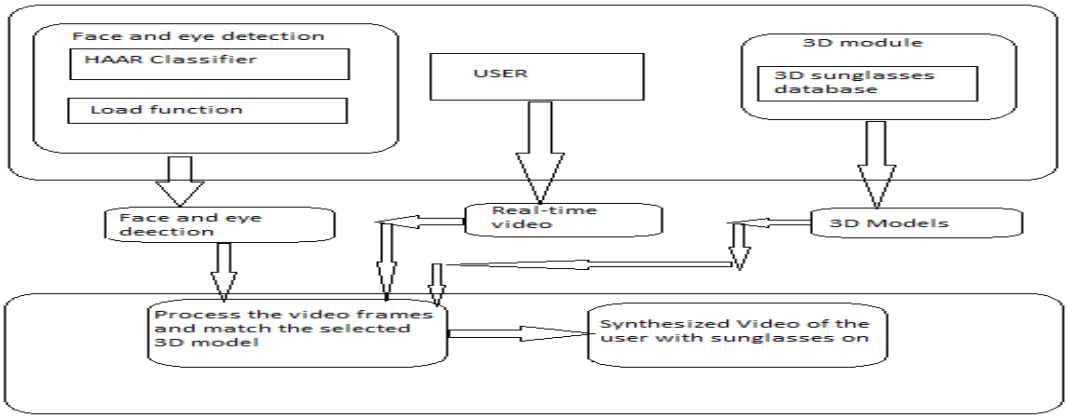
KEYWORDS: Augmented Reality (AR), Face Detection, Eye Detection, HAAR Classifier, LBD classifier, OpenCv, Graphic User Interface (GUI)

I. INTRODUCTION

Over the past few years ecommerce has increased tremendously. People prefer online shopping over malls and street stores. New vendors and designers find it economical to sell their goods online rather than to invest in shops and supermarkets. One factor that causes reluctance among people while shopping online is that they cannot try the product and check its size and appearance. They sometimes end up buying the wrong size or the product does not look good on them. This somewhat affects online trade. Augmented Reality has provided a solution for this very problem. AR enhances one's perception about reality. It is the integration of digital information with the user's environment in real time. The user can, thus, actually see how the product would look on him and whether it would fit him or not.

The proposed application enhances the visualization of customized sunglasses using Augmented Reality. It aims at enabling customers to try sunglasses on- line and check it's appearance and size thus promoting online sale. Augmented Reality provides the consumers this perception of reality. The application will be an Android app.

II. ARCHITECTURE OF APPLICATION



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The Android application is a video-based AR application for sunglasses where video of the user will be taken on clicking the camera option. For face detection we are using the HAAR classifier. Once the user's face is identified the Local Binary Pattern (LBP) classifier is run on the face to detect eyes. Both the classifiers require the OpenCv library.

For the 3D sunglasses we are using the Rajawali framework. It is a 3D framework for Android based applications.

III. MAJOR CONSTRAINTS

- This app will run on any Internet-accessible mobile device with android operating system
- Device should support minimum 5mp front camera
- For face detection user is expected to be front faced, user cannot face sideways.
- Real-life credit card validation and Banking system is not implemented.
- No multilingual support

IV. APPLICATIONS

Augmented Reality can be used in online shopping of various products such as:-

1. Choosing the right diamond ring can be a difficult task. The AR down- load can allow shoppers to try on the ring collections through the web- cam, and see how pieces would look in certain lights and against certain skin tones.[9]
2. Augmented reality catalogue can enable shoppers to visualize how certain pieces of furniture could look inside their home. Not only that, but the app can measure the size of the products against the surrounding room and fixtures to offer a true-to-life size where possible.[9]
3. Augmented Reality can also be further used for online shopping of dresses. Shoppers can immediately see what clothes look like on them and can ask friends for an opinion via Facebook and Twitter.[9]

V. STRENGTHS AND WEAKNESSES

Strengths:-

1. Application enables the user to easily try on sunglasses and check their appearance of sunglasses, thus promoting sale.
2. A user friendly interface.
3. Mobile application makes shopping easier for the customer.
4. The mobile application has high business value and is a powerful tool for marketing.

Weaknesses:-

1. Camera should be available in the device to be used
2. For face detection user is expected to be front faced, user cannot face sideways

VI. CONCLUSION AND FUTURE WORK

The proposed application can be further used to sell furniture, clothing and other home décor items as per customer requirements. Thus, the application promotes online shopping by creating a confidence among customers and assuring them the purchase of the right product.

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