EXPLORING THE CONTENTS OF OLD NEWSPAPERS USING AN AUGMENTED REALITY APPLICATION

Mrs. Soppari. Kavitha[1], B. Bindu Latha[2], K.L. Bhavya[3], M.Prashanth[4], N.Sainath[5]

[1] *Associate Professor, Department of Computer Science and Engineering, ACE Engineering College, Hyderabad, Telangana, India*

[2,3,4,5] *IV BTech Students, Department of Computer Science and Engineering, ACE Engineering College, Hyderabad, Telangana, India*

ABSTRACT

Newspapers are necessary for daily living because they provide information on a variety of topics, including the economy, trade, business, sports, and entertainment. Reading the news broadens one's perspectives and increases knowledge. Readers may interact with the information through digital elements including movies, animations, and other content with the use of an augmented reality application. A variety of augmented reality components, including buttons for videos, links, YouTube, and 3D models, can be utilised to increase the variety of information available in physical newspapers. Computers can identify and project things over the newspaper with the help of an augmented reality marker. A newspaper can set itself apart from other publications by using a marker and a smartphone with a non-standalone software that can recognise the marker, such as QR codes or photos. In an effort to make a newspaper more user-friendly, researchers are experimenting with the Vuforia Engine tool and Augmented Reality Tools.

Keywords: Tools for augmented reality, image processing, mobile application development, and the Vuforia Engine.

1. INTRODUCTION

Old newspapers are often delicate and prone to deterioration. Digitizing and archiving them through an AR application ensures their preservation for future generations. AR applications can provide a contextual visualization of the news articles, photographs, and illustrations found in old newspapers. They can access primary sources, examine headlines, read articles, and analyse advertisements.

Augmented reality is an innovative feature in newspapers that takes readers off the printed page. The illusion is produced when the camera app on a smartphone or tablet and an augmented reality application collaborates. The newspaper must be viewed through the mobile device's camera in order for the illusion to work. A photo in an article is scanned using the camera of a mobile device while augmented reality is used with a newspaper. The AR software recognizes the shot and then loads digital content that I am relevant to it. The content is presented in the camera view of the device. It's frequently placed over a scanned photo to give the impression that digital information has taken its place.

2. PROPOSED METHODOLOGY: DIGITALIZATION OF OLD NEWSPAPERS

Developing an Augmented Reality (AR) application for exploring the content of old newspapers, there is a need to address the following problem: Traditional newspapers provide a rich source of information, but their static nature limits the reader's ability to interact and explore the content in a dynamic and engaging manner.

To overcome this limitation, the problem statement is to build an AR application that can provide an immersive and interactive experience for exploring the content of old newspapers. By leveraging AR technology, the application aims to augment the traditional print medium with digital content, creating an enriched reading experience.

The AR application will utilize the camera of a smartphone or tablet to recognize specific markers or features on the newspaper page, such as images, headlines, or articles. Once recognized, the application will overlay relevant digital content, including videos, audio clips, 3D models, interactive graphics, and additional textual information onto the user's device screen in real-time.

The overall structure of the proposed methodology is explain in section 2.1.

2.1 ARCHITECTURAL DIAGRAM

Opens AR Camera: The AR application's system architecture uses a client-server architecture, with
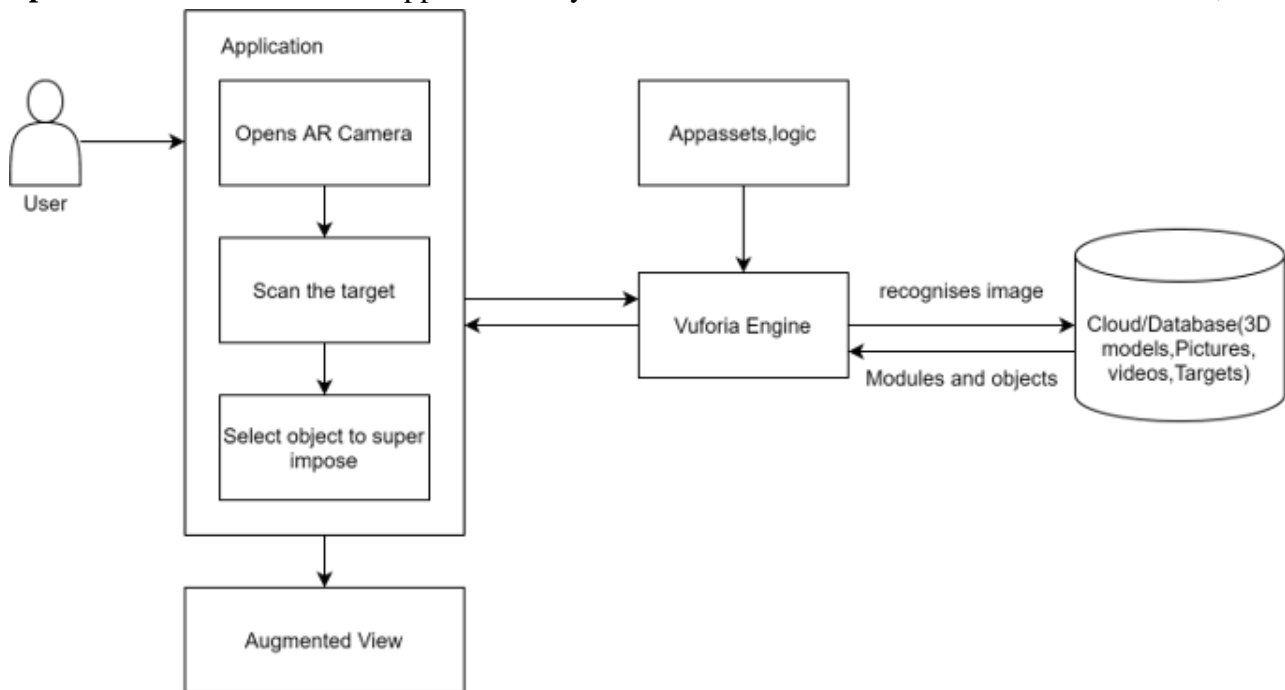
the AR camera opening when the user opens the application.

Scanning the target: The scanned AR markers are sent to the Vuforia engine, which queries the target recognition system and receives metadata.

Select object to super impose: Select the objects that appears after scanning the target which are sent to the Vuforia engine for processing and getting the relevant content.

Vuforia Engine: The mobile application, developed using Android and Java, controls the camera's viewfinder for scanning QR codes and AR markers, recognizes them, provides interpretation, sends requests based on scanned targets, obtains metadata, and displays the interpreted information on the phone's screen.

Augmented View: This augmented view allows users to interact and have a great experience.

Cloud / Database: This helps for storing the target images.

2.2 ALGORITHM FOR MARKER-BASED AUGMENTED REALITY:

Printing the right marker and placing it in front of the camera is the first step in tracking with a binary marker. This need is the glaring fault in the tracking algorithm.

The method of detection depends on the kind of marker and is pretty simple:

STEP 1: Utilising adaptive thresholding for edge extraction

STEP 2: The closed outlines of the binary picture are extracted

STEP 3: transforming contours

STEP 4: In contours, quadrilateral-shaped contours are recognized and roughly estimated.

STEP 5: Following the aforementioned procedures, the marker candidates are retained for subsequent marker recognition.

The following procedures are followed by storing the marker candidates for further marker identification.

Each applicant has a block made for them that is deformed to look from the front. The task of the recognition algorithm is to compare the candidate marker's binary code to the code of the real marker. The candidate that most closely resembles a marker is considered to be a match. The picture marker's more sophisticated tracking algorithm makes it unnecessary to place artificial binary markers in the environment. Simply taking a photo of a planar item in a real setting and using it as a marker is sufficient.
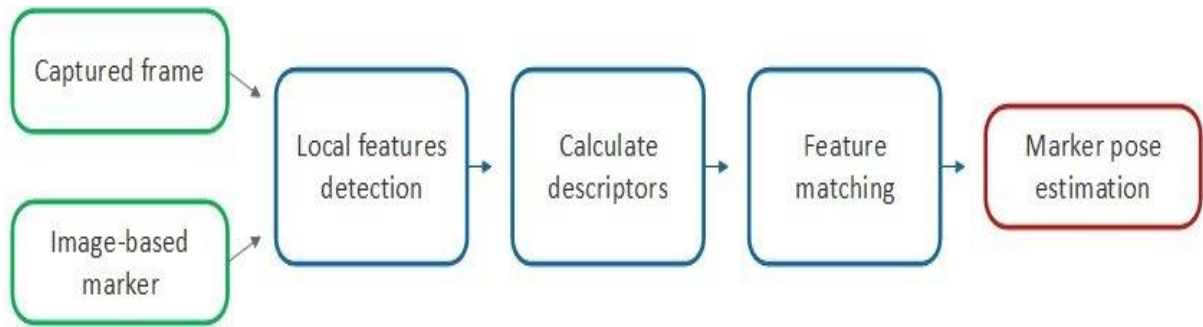
(Fig) 2.1 Describing of image-based tracking

**RESULTS AND DISCUSSIONS :**
ADVERTISEMENT ARTICLES:
When an advertisement is scanned through the app, it will display the options around the logo as shown in the Fig (a)
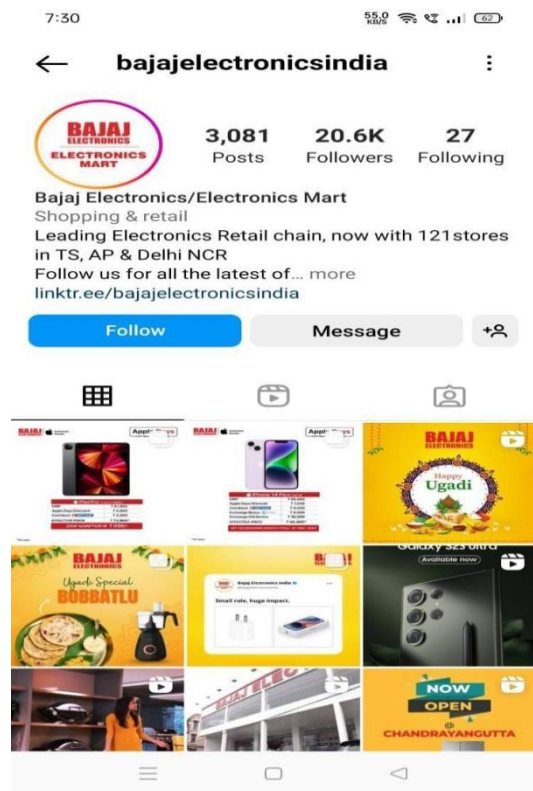

(a) objects hovering around the logo of the advertisement

When a logo is selected through the app, it will redirect the user to a particular page as shown in Fig b & c
In fig b – By selecting the you tube option of the bajaj advertisement the portal is opened & in fig c – the instagram option of the bajaj advertisement is opened
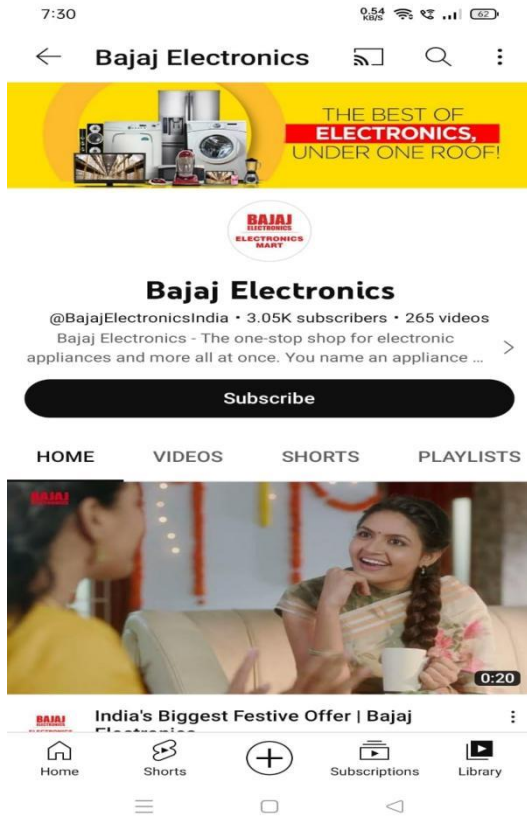
(b) option directing to the respective page   *(c) option directing to the respective page*
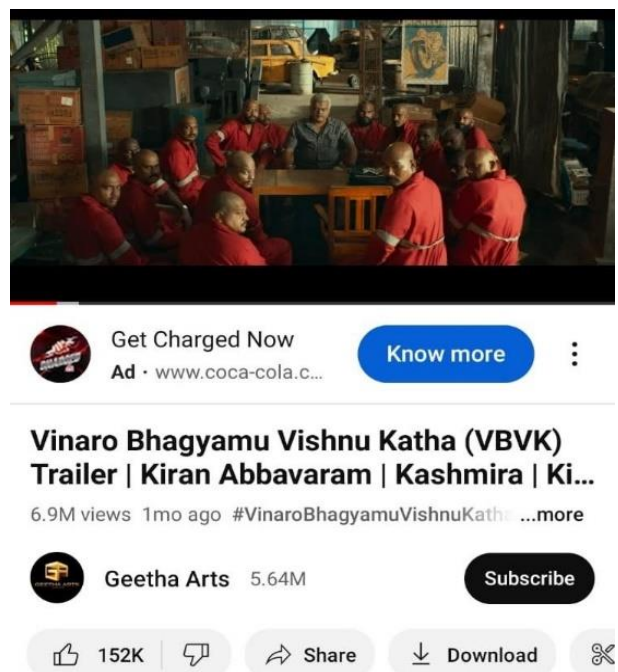
Similarily when the other modules are selected such as shown in fig – d : The movie poster related content is shown such as book my show app, teaser and review.
And in the fig – e: The teaser of the movie can be viewed when the Teaser option is selected

(d) scanning movie for the teaser, booking ticket   *(e) Displaying a teaser of the scanned movie*

CONCLUSION

The study's objective is to create an augmented reality app that continually gathers news content. A video pertaining to the article you're reading will show when you frame the image on your smartphone. The absence of tried-and-true marketing techniques, subpar content, problems with and limits with technology, societal difficulties, and more are major research challenges. In order to allow augmented reality (AR) experiences in newspapers, this research examines all currently used approaches and offers thorough descriptions of how AR technology may be combined with traditional newspaper layouts.

ACKNOWLEDGEMENT

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