

# Digital Business Card With Augmented Reality

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## ABSTRACT

The main goal of this project is to introduce Augmented Reality (AR) technology to mobile phones and turn it into a business card app. In comparison to other devices, the mobile phone makes it considerably easier to introduce AR technology to the general audience. As a result, on a portable business card, this project provides a basic explanation of Mobile Phone AR technology and its functionality. The visual 3D map will be displayed on mobile phones upon request, using a standard marked business card that aids track marking and location identification. Low-level graphics are also a barrier for this project, which aims to boost the power of mobile phones before implementing an AR-based real-time provisioning procedure.

## General Terms

Technology, Display, Card , Business.

## Keywords

Augmented Reality, Business Card, Mobile Phone, Identification, Vuforia , Framework, Android

## 1. INTRODUCTION

This research discusses the background of the research, problem statement, objectives, importance of research, proposed methodology, result and discussion and conclusion.

## 2. BACKGROUND

AR technology, which is based on Virtual Reality (VR) technology, differs from VR in that the content is set up or integrated into the real environment, and users interact with the physical reality [6]. For devices such as headphone jacks (IMD) and so on, AR requires 6DOF position tracking, which must be affordable, effective, and timely in changing ambient conditions [1]. The tendency for AR devices, on the other hand, had shifted. This is seen in Figure 1 from the HMD Backup's first augmented reality mobile version (Figure 1 a), which was then translated to a low-cost smart phone (Figure Id) [3]. Anonymous schemes coined the phrase "smart phone" to describe a new cell class that may be able to access and interpret data with the power of a computer [2]. A smart phone, according to Zheng and Ni (2006), is a tiny computer with a mobile network that usually includes personal information management systems (PIM) and some wireless

communication. In comparison to the more powerful and larger cell phone, [1] stated that smart phones target a distinct market for AR. Despite their frail appearance, smart phones are remarkably powerful and sensible in app creation. As smart phones have less processing capacity compared to PC platforms, achieving appropriate performance of AR applications necessitates careful selection of algorithms and programmed code. Most smart phones have a built-in camera that uses computer vision automatically. Because the quality of computer vision is depending on camera and image sensor properties, the AR level in smart phones is lower than AR on a PC platform [1].

In addition, marketing has promoted the development of smart phones at more megapixels than high-quality video [1] . This can enhance the capabilities of smart phones in making AR applications. In this project, the application of Mobile Phone AR in typical business cards will be covered .This study includes Augmented Reality (AR), Mobile 3D Maps, Cell Phone Augmented Reality in Business Cards [5].

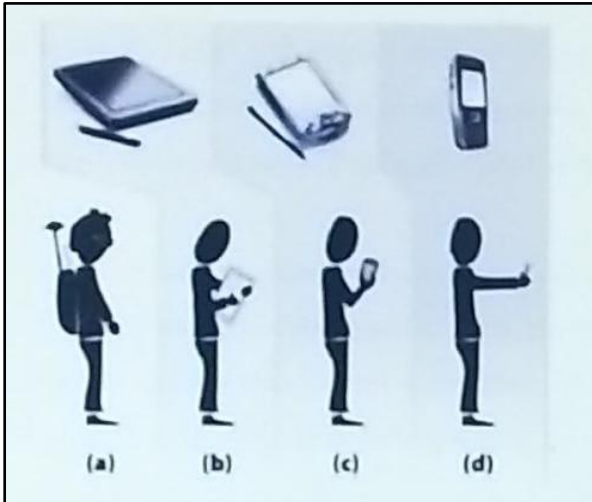
Augmented Reality (AR) is a futuristic technology that incorporates more than just visuals, sounds, and other upgrades into the real-world workplace. AR necessitates 6 DOF posture tracking devices, such as (HMD) headphone jacks, visual signals, and so on, where position tracking must be low-cost, effective, and real-time as the environment and conditions change. Through real-world 3-Dimensional virtual reality, AR promises to improve user experience and engagement with the actual world [12] [13].

According to Vallino (1998), the A.R. technology has reached maturity. As a result, there should be no conflicts between the generated environment and the norms that the user is used to hear in the actual world. The purpose of Augmented Reality technology is to establish a system that allows users to distinguish between the real world and a visual item that has been expanded. So. AR tries to adjust the visuals to fit the user's head and eyes, ensuring that the images match the vision.

Furthermore, in AR research, developers confront a huge issue in determining the user's location by referring to the surroundings [4]. Another issue with AR tracking is the user's eye and head movements, which the tracking system should detect and produce associated visuals as well as the actual working environment the user sees at any given time [4].

There are alternative approaches to improve tracking accuracy. One of them, like soldiers, needs a lot of GPS signals. GPS has evolved to the point that it can now achieve a high level of accuracy [4].

AR will pervade many aspects of our lives as long as researchers and developers overcome the obstacles they encounter. AR technology has a wide range of applications that can be used in a variety of industries, such as construction, military, construction, quick information, and sports. There are thousands of potential applications for such technology, the most obvious of which are gaming and entertainment [4].



**Fig. 1: Appearance of small AR: (a) Backpack with HMD. (b) UMPC. (c) hand held. (d) Cell phone. [1]**

Cell phones have gotten increasingly intelligent in recent years [3]. The number of cell phones sold in 2012 is predicted to be 1.8 billion, with 800 million of those being smart phones [3]. Cell phones can access and process data using computational power [2]. A smart phone, according to Zheng and Ni (2006), is a compact computer connected to a mobile network and equipped with a personal information management system (PIM) and wireless communication capabilities.

Prior to the creation of the augmented reality mobile phone more study has been done on mobile AR to see if mobile PCs (DMPCs) can replace the bulky backpack and headset setup. The conversion of UMPCs to PDAs followed by Smartphone which is also on the rise. In comparison to UMCS, the smart phone targets a distinct market for AR [1] [10]. Although the devices' appearance is frail, the AR feature of the smart phone works remarkably smooth and unobtrusively [11].

Thus, in order to achieve adequate functionality of the AR application, choosing the right algorithms is important [3]. The quality of computer tracking is greatly influenced by camera and image sensor features such as frame size, revision rate or lens distortion [9].

### 3. PROBLEM STATEMENT

Aspect ratio of ordinary business card in India is 1.64 and business card standard size of 3.5-inch x 2.0-inch. The name of the person, the firm or organization with or without logo, and contact information such as address etc. is included in

business card [8]. Contact information also includes websites address, email addresses, mobile number. A professional business card nowadays contains one or more components that resemble an address map. [7]

The typical size of a business card makes it impossible to communicate more information due to space constraints. As a result, the information encoded in the business card is ambiguous or incomplete, leading to reader confusion. A map attached to a business card, for example, might sometimes be

confusing to its viewer due to its imprecise location information. As a result, there is a pressing need to find a solution to such issues. This project is creating and building a business card application using Mobile Phone AR technology to improve the functionality of standard business cards as part of our work. The goal of this app is to give clear information regarding Mobile Phone AR technology on a real-world object while staying within the space constraints.

### Objective

The objective of the study is to design and develop a Mobile Phone Augmented Reality application for typical business cards.

### Importance of Research

Despite the fact that mobile phone AR technology is still in its infancy stage, the amount of people who will use a smart phone by the year 2022 is expected to reach 6567 million units globally. This development indicates that mobile phone augmented reality will become a new large area of development.

By incorporating Mobile Phone AR into a standard business card, may save both space and money. A normal and average business card has relatively little room for showing information, much less a map. This difficulty can be overcome by employing a small, unique identifier that will be utilized to aid in the eventual display of a virtual object, such as a 3D map, on a mobile phone screen. The research area does not only limit to business cards but it can also be applied to other materials or fields such as magazines, leaflets, newspaper advertisements, etc.

### Proposed Methodology

Step 1: The Admin Maintain the enters facebook address, twitter address, linkedin profile, contact details, email, instagram address, additional information.

Step 2: User scans business card

Step 3: Application will display facebook address, twitter address, linkedin profile, contact details, email, instagram address and additional information.

### Result & Discussion

Figure 2 depicts the appearance of the initial user interface. It contains several buttons, including START AR, which is used to activate the AR camera and scan any card. ABOUT, provides information about the user who created the program. FUN, which is used to play the game an additional feature, and lastly QUIT, which is used to exit the app.



Fig. 2: UI at the start of application

Figure 3 depicts the User Interface of the display window after scanning the card to demonstrate how it appears. It contains a variety of user information, such as phone numbers, email addresses, and social media handles, all of which are presented in the form of buttons that allow users to access information on the company's members.

## Experimental Result



Fig. 3: Outcome after scanning the business card

## 4. CONCLUSION

This study provided an overview of the use of mobile phone AR technology. Furthermore, it is the simplest approach to expose AR technology to the general audience. This project entails the creation of business card applications that use Mobile Phone AR technology to enhance its standard operations. The concept can also be used in other mediums or fields, such as newspapers, magazines, and leaflets.

## 5. FUTURE SCOPE

Once it come in production handling the data wit cloud database by the client itself by the subscription model.

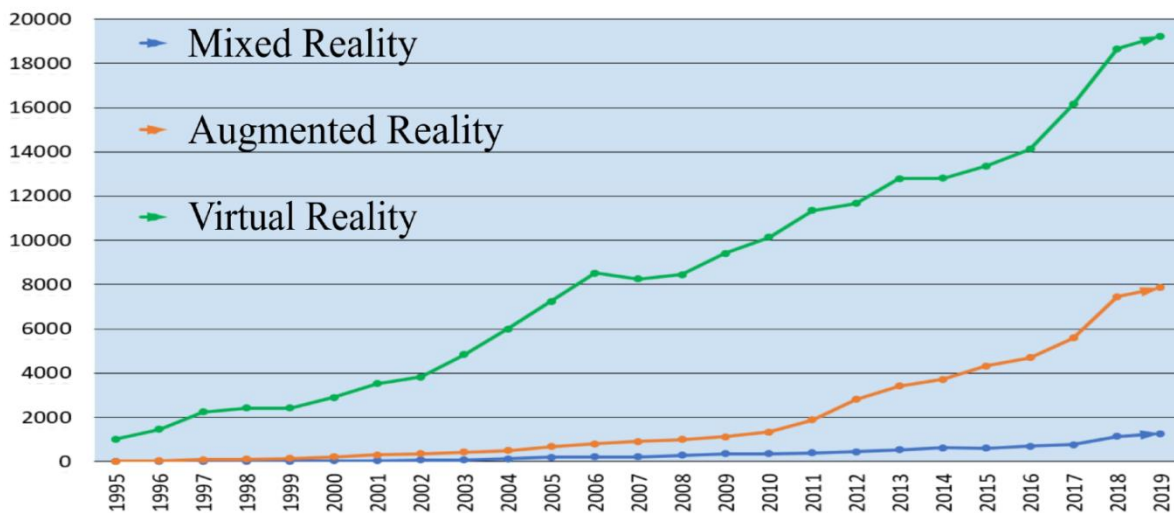


Fig. 4: Historical trends of the Mixed Reality (MR), Augmented Reality (AR), and Virtual Reality (VR) keywords in the papers indexed by the Scopus database

Over the history of AR as shown in Figure 4, one of the main issues were related to the proper identification of the user's position in the 3D environment necessary for the augmentation of the user's view in the AR device..

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