

# HealthC(AR)

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## Project Overview

HealthC(AR) is a mobile application that allows medical and healthcare professionals to retrieve patient information and medical records through facial recognition. The objective of HealthC(AR) is to help medical professionals facilitate and improve patient care all while enhancing efficiency. When seeing patients, it can often take several minutes to pull up relevant information including reasons for visit, charts, tests, etc. HealthC(AR) enables medical professionals to have a clear view of their patient's medical history at the touch of a screen, all in a concise form.

## Design & Requirements

The application was designed with simplicity and efficiency in mind. Upon opening the application, the user is directly taken to a live camera feed. From there, they can perform facial recognition by directing the camera towards the patient. This is followed by a dialog box that asks the user to confirm whether or not the identified patient is correct. After verifying this, the application will display the corresponding patient information.

HealthC(AR) operates on both iOS and Android. As of now, the Android application is only able to perform the facial recognition feature. On the other hand, the iOS application is complete and fully functioning. Something worth mentioning is that the iOS and Android apps were developed differently. The main difference is the facial recognition model we used. The purpose behind having varying facial recognition models was to experiment with the accuracy of each model.

## Challenges

Throughout the development process of HealthC(AR), we overcame several challenges. Initially, HealthC(AR) was intended to be a HoloLens augmented reality app – hence the name. While developing this app, we ran into issues pertaining to the development environment. Certain features were deprecated that were crucial to the creation of our app. There was a lot of uncertainty, lack of resources, and it was costly to develop on the HoloLens. Therefore, we decided to switch platforms and create a mobile application that harbored similar requirements and capabilities.

## Testing & Mitigation

We conducted a usability test by having 8 testers download and operate HealthC(AR) on their personal mobile devices. We received feedback on the ease of use, speed, accuracy, and design of the application.

Overall, the users found both the Android and iOS apps quick and easy to use. There were some found issues with the patient information screen on the iOS version, however. Part of the information was being cutoff on certain iPhone models which we fixed upon receiving the feedback. The feedback on the accuracy of the iOS facial recognition feature was more varied. While the majority of users found the feature to be accurate, in some cases, the app had trouble identifying a certain person. In order to mitigate this issue, we further trained our facial recognition model to improve accuracy. On the other hand, the facial recognition on the Android HealthC(AR) app was found to be very accurate with no issues.

## Future Implementations

Some ideas to consider for future implementations are enabling the user to modify patient data directly on the app. For now, the user is only able to view patient data. This would further enhance the efficiency of the product. Also, for this project, we developed the Android and iOS HealthC(AR) apps separately. We could create a cross-platform app that could be deployed to several different platforms. This would make the app consistent regardless of what its being used on and it would make adding new features easier.