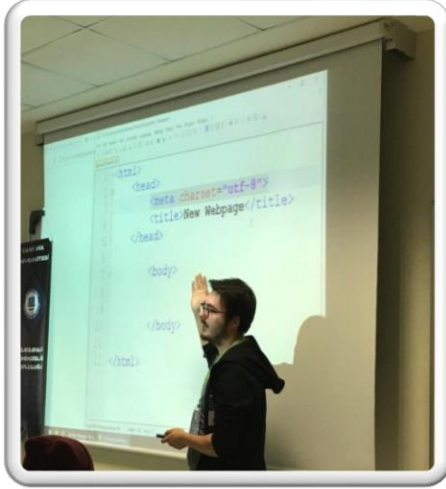




# **Kloti: Mobile Shopping Application Powered by Augmented Reality**

Advisor: Dr.Murat Saran

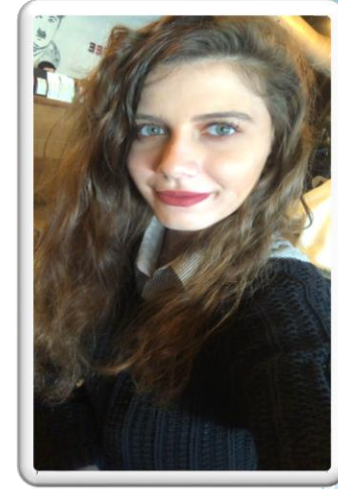
# PROJECT MEMBERS



Oğuzhan TARHAN  
201711062



Laçın BOZ  
201811014



Cemre ÖZMEN  
201711053

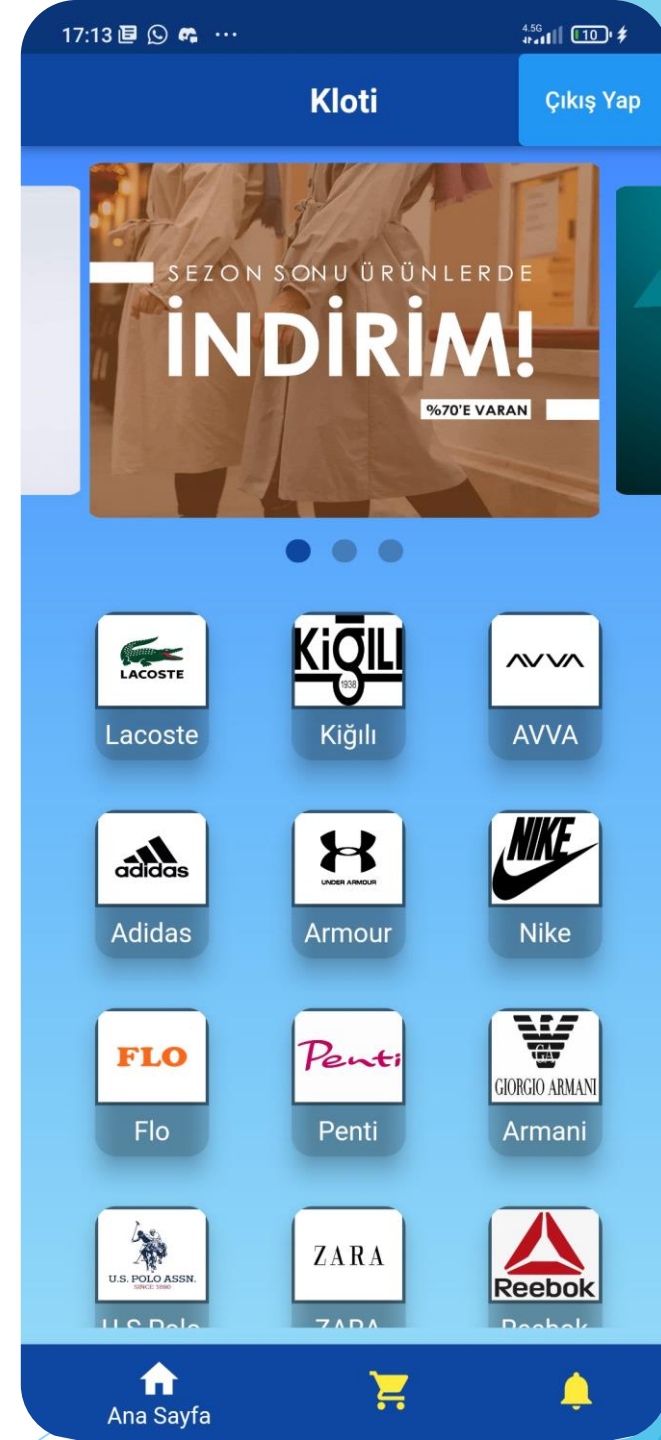
# CONTENTS

---

- Introduction
- Problem
- Solution
- What Is Firebase Why We Prefer ?
- Firebase Connection For Authentication
- Cloud Firestore
- Firebase Storage For Images
- Technologies
- Augmented Reality
- What Is ARCore & Why We Prefer?
- How Phones Work With Augmented Reality ?
- Kloti AR
- Summary Test
- Conclusion
- Demo Video

# INTRODUCTION

- Our application, which we named Kloti, allows users to see the product they want as if they are on them, thanks to AR technology while shopping on their phones.



# PROBLEMS

- ▶ Waste Of Time
- ▶ Slow Shipping
- ▶ Not Beging Able To Try The Product
- ▶ Less Product Visibilty
- ▶ People Have To Leave The House To Shop



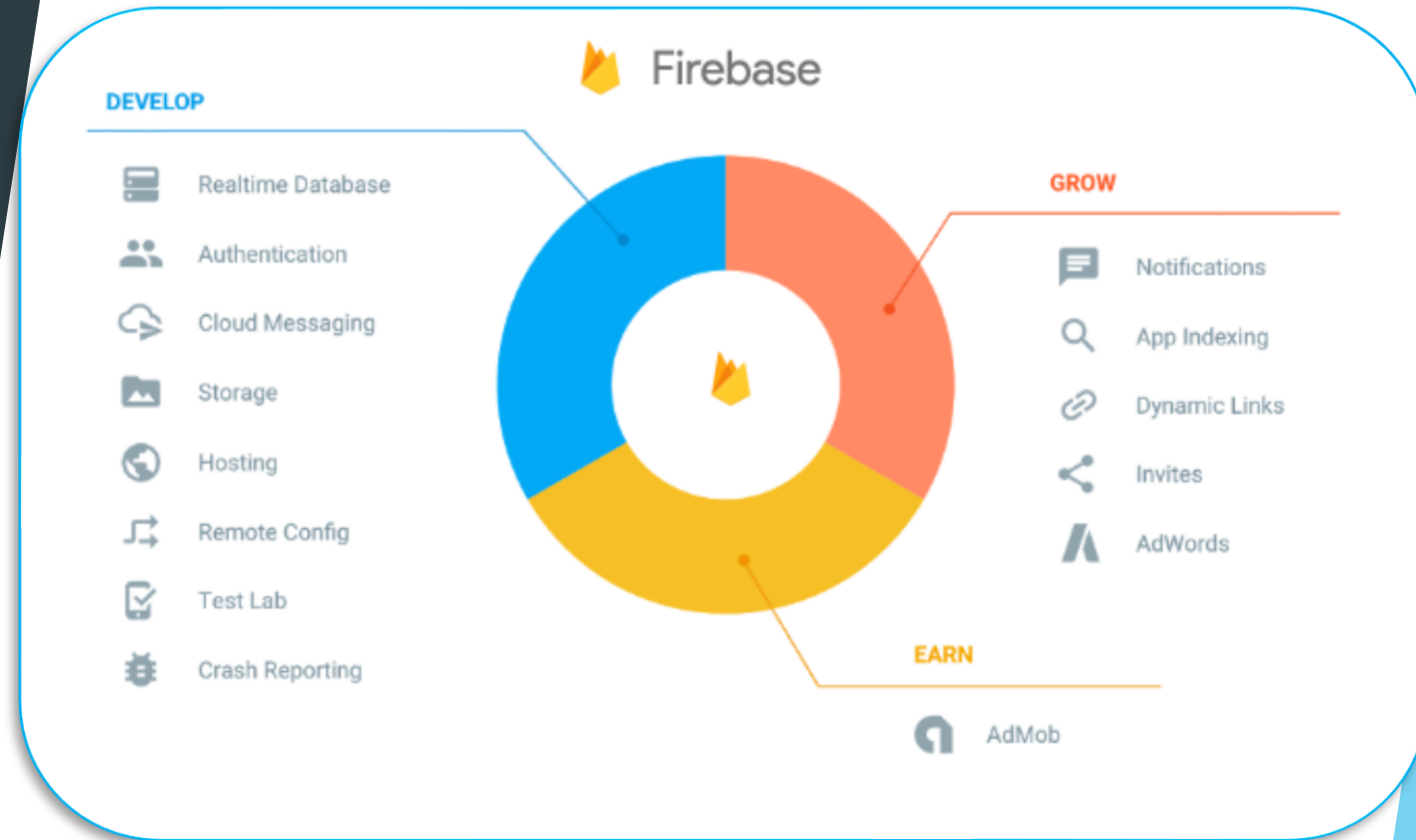
# SOLUTION

- Allows you to try on the outfit using the camera.
- It ensures that the order arrives within the same day.
- Finds your location via GPS and brings the product you want through the closest location to you.
- Allows us to see the clothes you want through the product catalog.



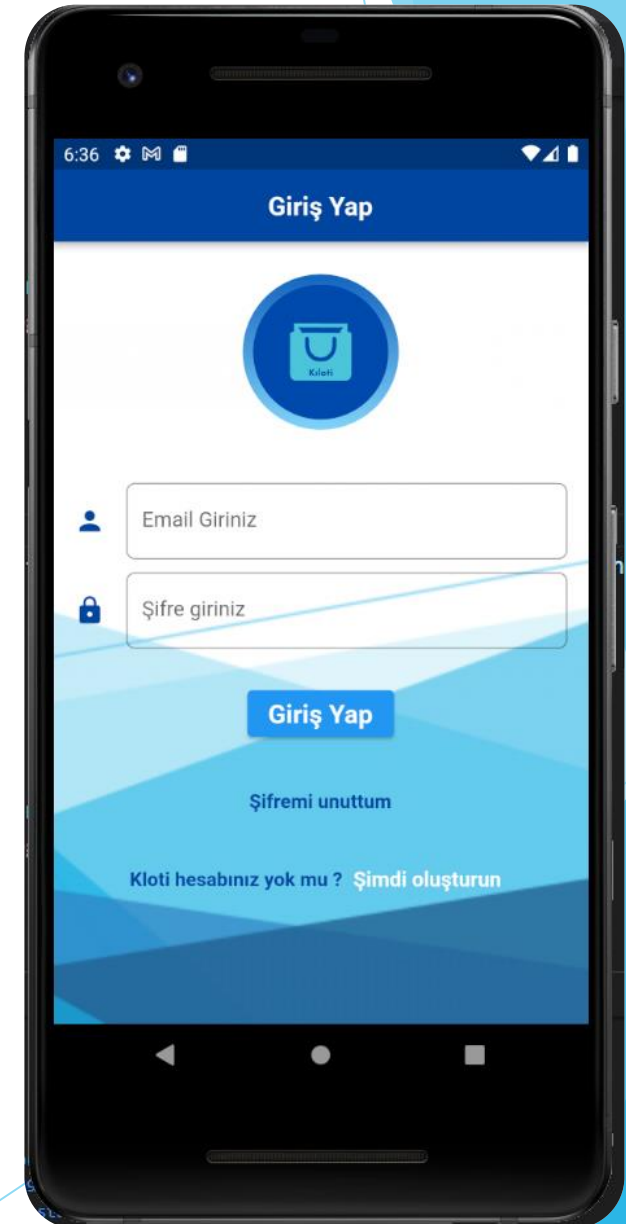
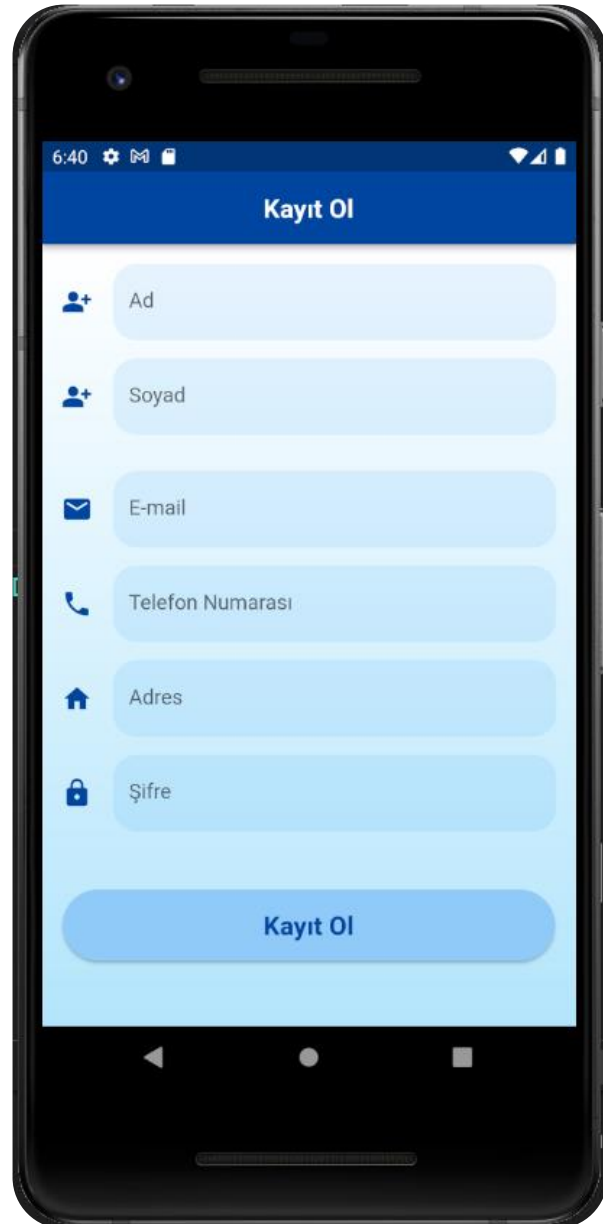
# WHAT IS FIREBASE & WHY WE PREFER ?

- ▶ Firebase is a platform developed by Google for building mobile and web applications.
- ▶ The reason we prefer Firebase is that it has features such as analyzing usage data of applications and sending notifications to users to make new announcements.







# User Interface For Firebase





# FIREBASE CONNECTION FOR AUTHENTICATION

 **Firebase**

[Project Overview](#) 

**Build**

- [Authentication](#)
- [App Check](#)
- [Firestore Database](#)
- [Realtime Database](#)
- [Extensions](#)
- [Storage](#)
- [Hosting](#)
- [Functions](#)
- [Machine Learning](#)

**Release & Monitor**  
Crashlytics, Performance, Test Lab, ...



**Analytics**  
Dashboard, Realtime, Events, Conve...














**Engage**  
A/B Testing, Cloud Messaging, In-A...

kloti-last ▾

**Authentication**

[Users](#) [Sign-in method](#) [Templates](#) [Usage](#)

[Add user](#)  

Identifier	Providers	Created ▾	Signed In	User UID
oguzhantarhanankara6@g...		Jun 10, 2022	Jun 10, 2022	qsOiG5Zi0nTM2V7NckuDCVBUXs...
oguzhantarhanankara5@g...		Jun 10, 2022	Jun 10, 2022	e5rT2Wtip1au01mxXH5oyCcbJog2
oguzhantarhanankara4@g...		Jun 10, 2022	Jun 10, 2022	jCMYxMourcQMEGB3P10Ddgq7B...
ogtr@gmail.com		Jun 10, 2022	Jun 10, 2022	CGZBKENLakRbD3AoHR7f5PLO5...
og1@gmail.com		Jun 2, 2022	Jun 2, 2022	VcKt2U2l4ic2dvfrzCHXU0fKEUI3
oguzhantarhanankara2@g...		Jun 1, 2022	Jun 2, 2022	9nYLwHTLz4YWAestJXoYlip5xbE2
oguzhantarhanankara@gm...		Jun 1, 2022	Jun 1, 2022	pu0qzaZqv8QnBSI5TSESvrnoFKo2
lacinboztest@gmail.com		Jun 1, 2022	Jun 1, 2022	3Lyz207tBqgliJ0qiNNoZDB9qtk2
lacinboz4@gmail.com		Jun 1, 2022	Jun 11, 2022	LT1FgacYfEQMISLEoyRel4y6N9i1
lacinboz3@gmail.com		Jun 1, 2022	Jun 12, 2022	0VIHrO7tfbZ3aVyKu8A9pF2pBaA2
lacinboz2@gmail.com		Jun 1, 2022	Jun 1, 2022	ibUP58Nd7sgDEfaCpY6lTzJyOhi1
lacinboz1@gmail.com		Jun 1, 2022	Jun 1, 2022	ibUP58Nd7sgDEfaCpY6lTzJyOhi1
lacinboz0@gmail.com		Jun 1, 2022	Jun 1, 2022	ibUP58Nd7sgDEfaCpY6lTzJyOhi1

# CLOUD FIRESTORE

Firestore

Project Overview

Build

Authentication

App Check

Firestore Database

Realtime Database

Extensions

Storage

Hosting

Functions

Machine Learning

Release & Monitor

Analytics

Engage

kloti-last

Go to docs

L

?

Cloud Firestore

DataRulesIndexesUsage

users > LT1FgacYfEQMi... > images

users

+ Add document

0VIHr07tfbZ3aVyKu8A9pF2pBaA2

3Lyz207tBqgIiJ0qiNNoZDB9qtk2

9nYLwHTLz4YWAestJXoYlip5xbE2

CGZBKENLAKrBd3AoHR7f5PL05he2

LT1FgacYfEQMiSLEoyRel4y6N9i1

VcKt2U214ic2dvfrzCHXU0fKEUI3

e5rT2Wtip1au01mxXH5oyCcbJog2

jCMYxMourcQMEGB3P10Ddgq7BJj1

pu0qzaZqv8QnBSI5TSESvrnoFKo2

qs0iG5Zi0nTM2V7NckuDCVBUXs12

uid

LT1FgacYfEQMiSLEoyRel4y6N9i1

+ Start collection

images

+ Add field

address: "sancak mah"

email: "lacinbozyeni@gmail.com"

firstName: "Laçın"

lastName: "Boz"

phoneNumber: "12345"

uid: "LT1FgacYfEQMiSLEoyRel4y6N9i1"


images



+ Add document

HZVb2be530YJKJ1CcdQd










SNzVoAUivDepLr960ZI9

# STORAGE FOR IMAGES

 **Firebase**

 **Project Overview** 



**Build**


-  **Authentication**
-  **App Check**
-  **Firestore Database**
-  **Realtime Database**
-  **Extensions**
-  **Storage**
-  **Hosting**
-  **Functions**
-  **Machine Learning**

**Release & Monitor**  
Crashlytics, Performance, Test Lab, ...


**Analytics**  
Dashboard, Realtime, Events, Conve...


**Engage**  
A/B Testing, Cloud Messaging, In-A...



kloti-last ▾Go to docs  


**Storage** 

[Files](#) [Rules](#) [Usage](#)


 <gs://kloti-last.appspot.com>



 Upload file


<input type="checkbox"/>	Name	Size	Type	Last modified
<input type="checkbox"/>	 LT1FgacYfEQMiSLEoyRel4y6N9i1/	—	Folder	—


# Examples For The Images


 **Firebase**


 Project Overview 


**Build**


 Authentication


 App Check


 Firestore Database


 Realtime Database

 Extensions

 **Storage**

 Hosting

 Functions



 Machine Learning


**Release & Monitor**  
Crashlytics, Performance, Test Lab, ...

**Analytics**  
Dashboard, Realtime, Events, Conve...

**Engage**  
A/B Testing, Cloud Messaging, In-A...


kloti-last ▾



Go to docs  










**Storage** 



[Files](#) Rules Usage


[gs://kloti-last.appspot.com > LT1FgacYfEQMi... > images](#)


 Upload file

<input type="checkbox"/>	Name	Size	Type	Last modified
<input type="checkbox"/>	 post_1654125283134	445.55 KB	image/jpeg	Jun 2, 2022
<input type="checkbox"/>	 post_1654125702481	221.96 KB	image/jpeg	Jun 2, 2022
<input type="checkbox"/>	 post_1654126422422	221.96 KB	image/jpeg	Jun 2, 2022
<input type="checkbox"/>	 post_1654126792487	221.96 KB	image/jpeg	Jun 2, 2022
<input type="checkbox"/>	 post_1654950414015	221.96 KB	image/jpeg	Jun 11, 2022
<input type="checkbox"/>	 post_1654950419535	221.96 KB	image/jpeg	Jun 11, 2022
<input type="checkbox"/>	 post_1654951460298	445.55 KB	image/jpeg	Jun 11, 2022
<input type="checkbox"/>	 post_1654951541076	221.96 KB	image/jpeg	Jun 11, 2022
<input type="checkbox"/>	 post_1654951969882	445.55 KB	image/jpeg	Jun 11, 2022

 post\_16541252831... 




Name  
[post\\_1654125283134](#) 


Size  
456,247 bytes

Type  
image/jpeg

Created  
Jun 2, 2022, 2:14:46 AM

Updated  
Jun 2, 2022, 2:14:46 AM

File location 

Other metadata 

# TECHNOLOGIES



Dart



Visual Studio Code



Flutter



android



Firebase



ARCore



# AUGMENTED REALITY



# What Is ARCore ?

ARCore is Google's platform for building augmented reality experiences. Using different APIs, ARCore enables your phone to sense its environment, understand the world and interact with information. Some of the APIs are available across Android and iOS to enable shared AR experiences.

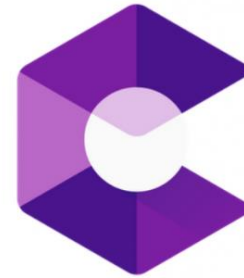
ARCore uses three key capabilities to integrate virtual content with the real world as seen through your phone's camera:

Motion tracking allows the phone to understand and track its position relative to the world.

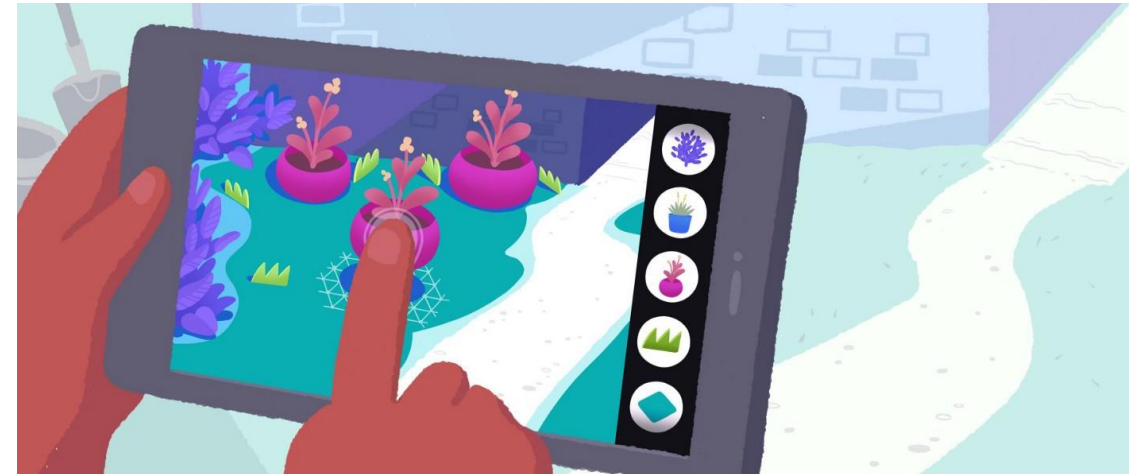
Environmental understanding allows the phone to detect the size and location of all type of surfaces: horizontal, vertical and angled surfaces like the ground, a coffee table or walls.

Light estimation allows the phone to estimate the environment's current lighting conditions.

ARCore is designed to work on a wide variety of qualified Android phones running Android 7.0 (Nougat) and later.



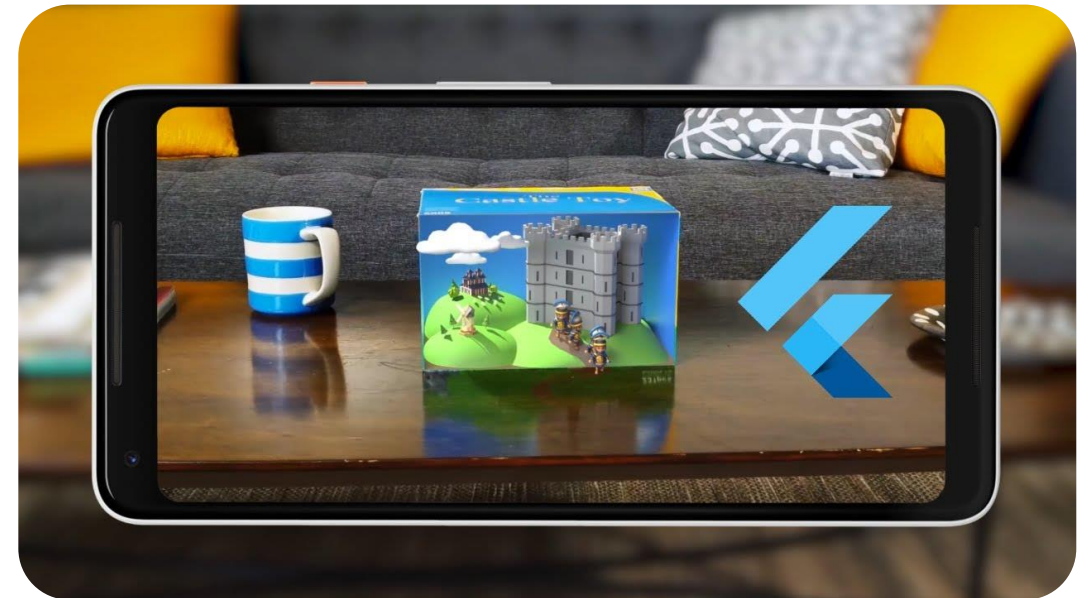
# ARCore



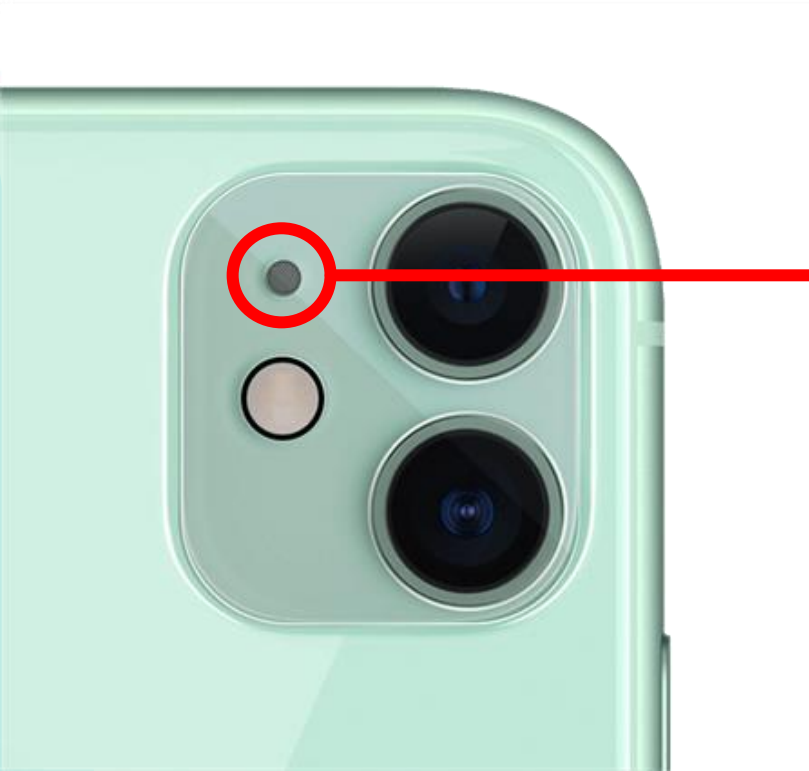


# Why We Prefer ARCore ?

► We chose to use ARCore in this project because Flutter and ARCore can work in harmony with each other since it is a technology developed by Google.

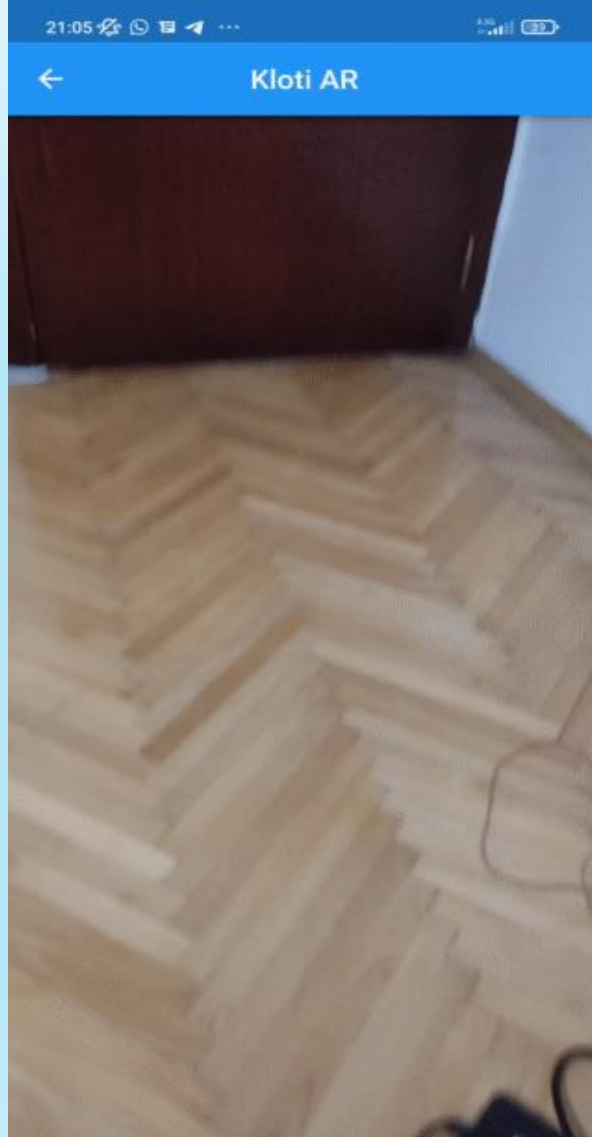


# How Phones Work With Augmented Reality ?



Augmented reality can detect surfaces thanks to infrared sensors on phones or point scanners. Infrared rays emanating from these points come to the phone by hitting the surface, and the phone can thus detect the surface.

# KLOTI AR

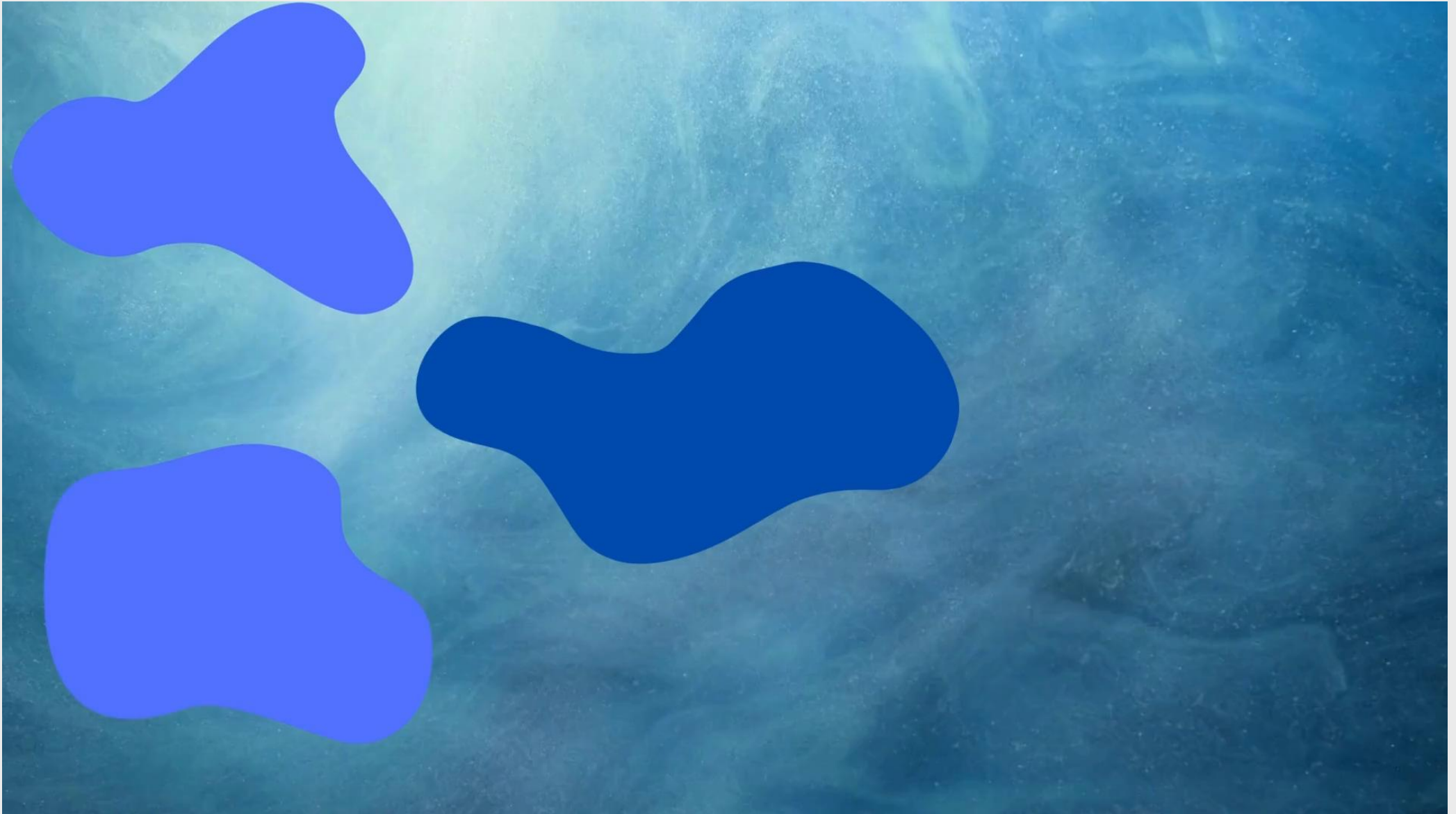


# SUMMARY TEST

Priority	Number Of Test Cases	Executed	Passed
HIGH	36	35	30
MEDIUM	0	0	0
LOW	0	0	0
TOTAL	36	36	30
TOTAL	36	36	30




# CONCLUSION

- ▶ As a result, we will be able to shop more efficiently because this app uses the AR technology we developed by examining some shopping applications and because it provides fast delivery.
- ▶ In addition, this application will appeal to many people because it can work on operating systems such as IOS and Android.





# THANK YOU FOR LISTENING



# KLOTI

MOBILE SHOPPING APPLICATION POWERED BY AUGMENTED REALITY

OĞUZHAN TARHAN - LAÇİN BOZ- CEMRE ÖZMEN

ADVİSOR DR. MURAT SARAN

Çankaya University, Department of Computer Engineering

## ABSTRACT

Recently, the use of shopping applications has increased with the effect of the pandemic. Unlike other shopping applications, our application allows users to use AR technology. It allows them to see the products as if they are on them without purchasing the products, and our application also provides day delivery service thanks to the location information of the users.

The purpose of our application is to provide users with efficient shopping and to fix problems that occur during delivery.

In addition, since our application will cooperate with small tradesmen, we aim to make their workplaces known.

Keywords: Augmented Reality, Mobile Application, Shopping.

## INTRODUCTION

There are two types of users in our Kloti application, one of them is the customer and the other is the employee. In order to use our application, the customer must first download the application from the App Store or Play Store.

After the download, the user can register to the application. Our application gives users the opportunity to examine various products. From here, the user can access detailed information about the product by clicking on the product he likes, and by clicking on the camera icon, he can see the product as if it is on it with the help of AR technology. In addition, thanks to the address information of the user, the product she likes can be delivered within the day from the nearest store.


Users can shop efficiently thanks to these services offered by our application. Employees, on the other hand, can access the orders placed by the customers in our application, as well as view the orders placed by the customers on the main pages, and select the orders they want to deliver by clicking the confirm order button.


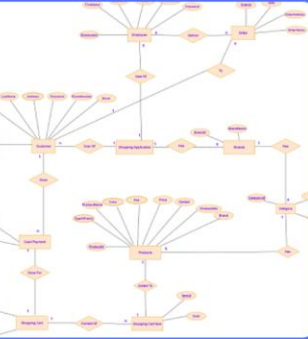
## SOLUTION

Thanks to the Kloti application, users can save their time, as they can access many products from where they sit and users will not have to go to the mall or store to try the product they want to buy, as they can see the product they want to buy as if they are on them with the help of AR technology, thanks to Kloti. In addition, users will not have to deal with problems related to cargo since delivery will be given to the users from the nearest stores.

## RESULTS & CONCLUSION

As a result, we designed the Kloti application because we want people to shop more efficiently. Thanks to the Kloti, users are provided with the opportunity to try the products they want to buy from wherever they are, and they can receive delivery service during the day. They can become popular in small tradesmen thanks to the Kloti.





## ACKNOWLEDGEMENT

We would like to thank our project consultant, Murat Saran, for supporting and helping us during the development and management process of our project, being there for us whenever we need it. We also thank the computer engineering department teachers for their support.

