



Mobile Computing (2021 Fall)

PaceMaker

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Introduction *PaceMaker*



Problems

It is not easy to run with other people in the same **place** at the same **time**.

- To meet at the same time, appointment in advance is needed.
- It can be difficult to find a track where everyone can run together.
- Due to the corona virus, it is burdensome to gather together.

Introduction *PaceMaker*



Goal

Give the user a chance to run together **whenever they want**

Make it feel like a track **wherever users run** and don't care about each other's location

Relieve the burden of gathering due to corona virus

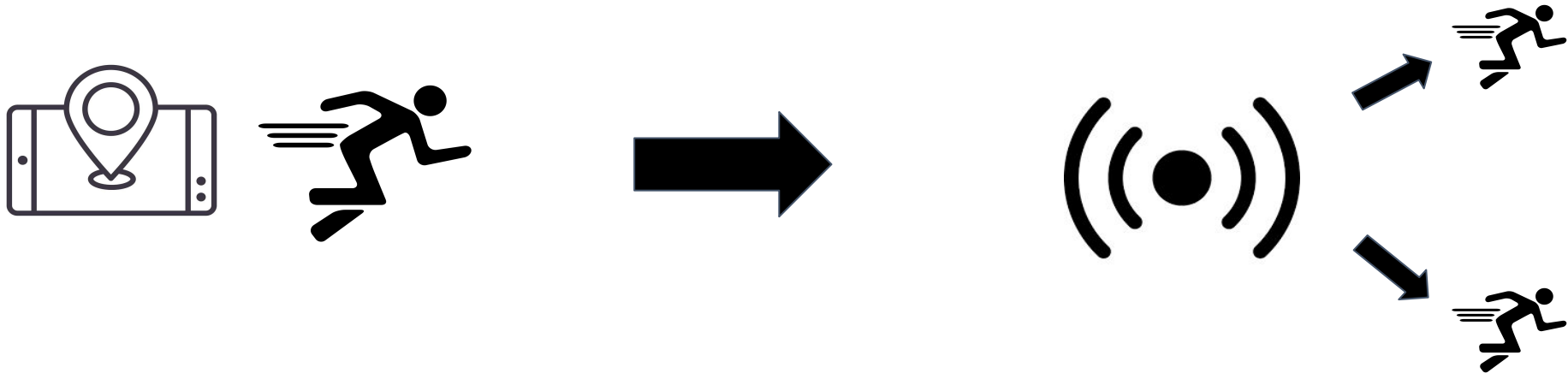
and *PaceMaker*

Introduction *PaceMaker*

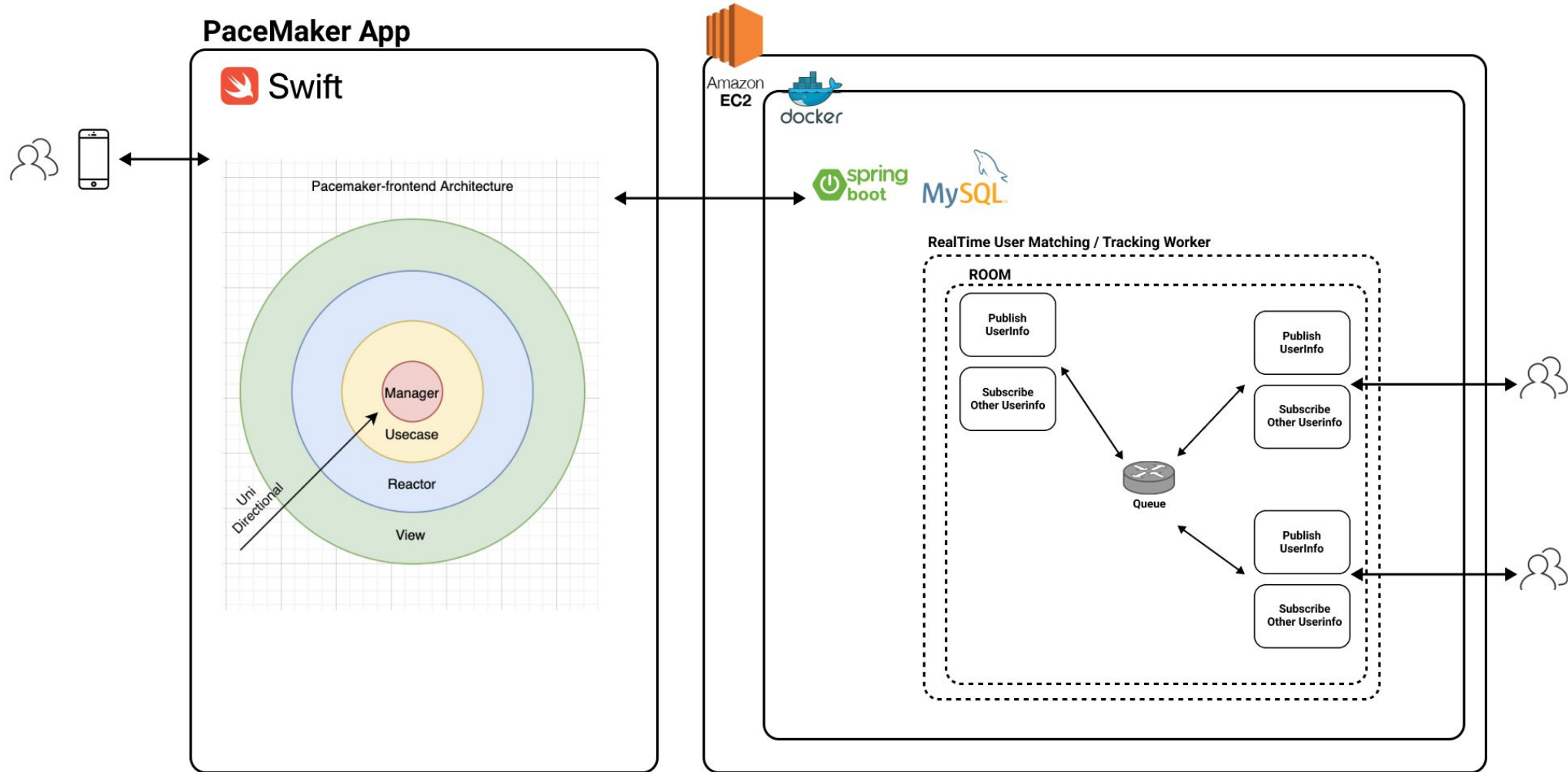
Key Solution

Match people who want to run by implementing a task queue

Running competitions by tracking users' GPS in real time



Architecture Overview

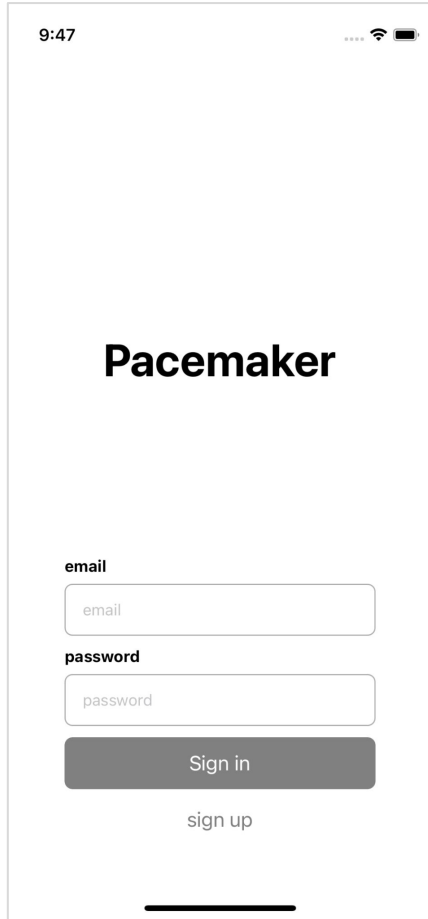


Architecture Overview

Tech Stack

Frontend (iOS)	Language & Framework <ul style="list-style-type: none">- Swift- RxSwift & RxCocoa- ReactorKit
Backend	Language & Framework <ul style="list-style-type: none">- Kotlin & Spring Boot Database <ul style="list-style-type: none">- MySQL, Redis Deploy <ul style="list-style-type: none">- AWS EC2- Docker

View Pages



9:47

Pacemaker

email

email

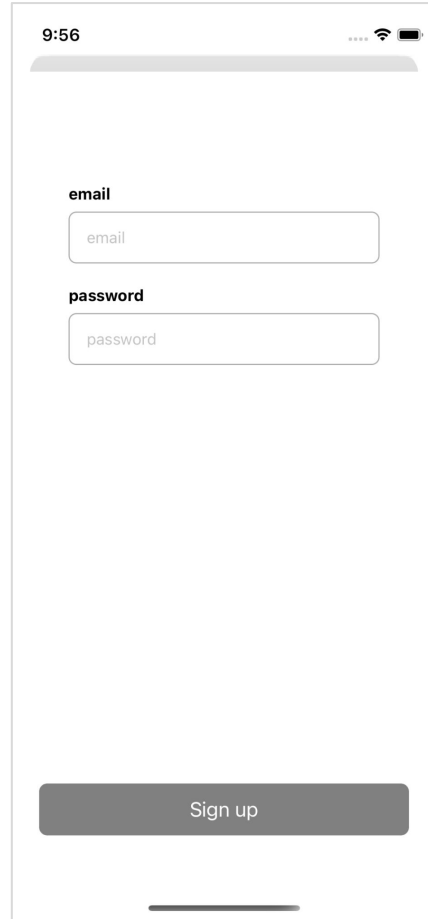
password

password

Sign in

sign up

This is a mobile app interface for 'Pacemaker'. It features a sign-in/sign-up screen. At the top, the time is 9:47. The app name 'Pacemaker' is centered. Below it, there are two input fields: 'email' and 'password'. A 'Sign in' button is positioned below the password field, and a 'sign up' link is located below the 'Sign in' button.



9:56

email

email

password

password

Sign up

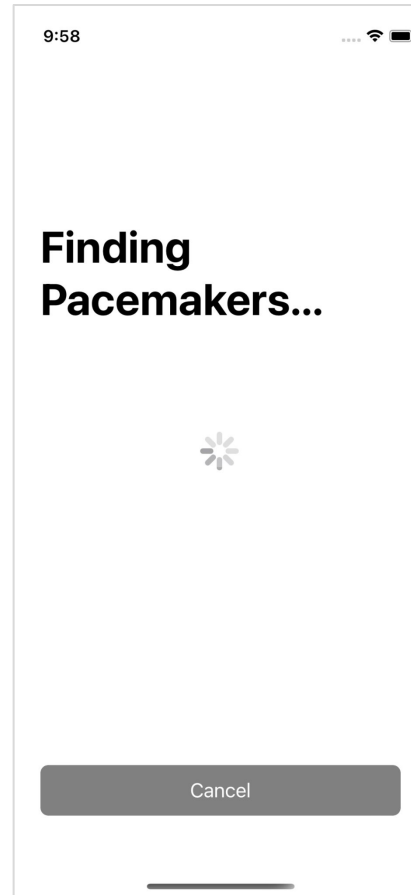
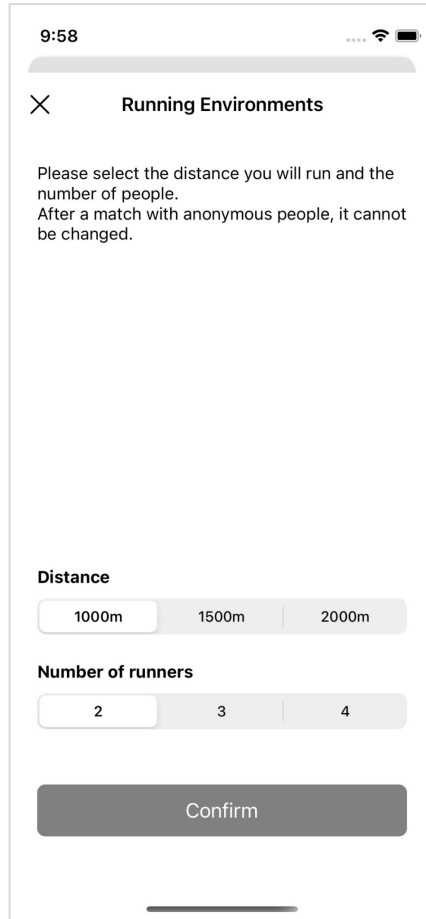
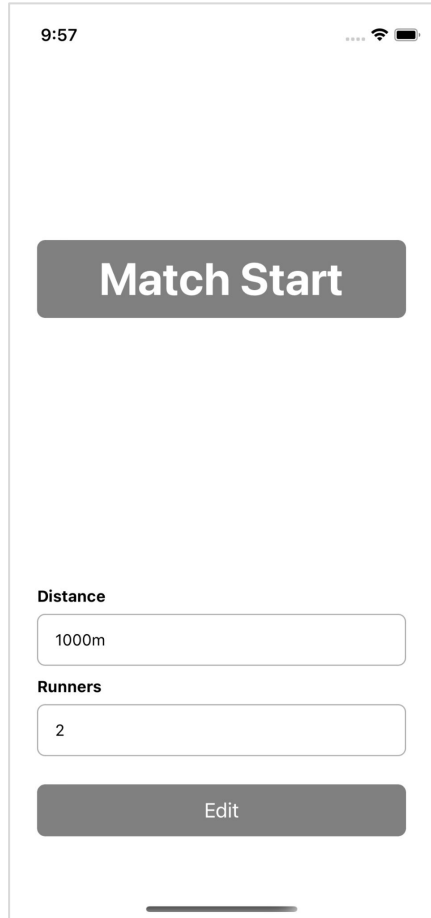
This is a mobile app interface for 'Pacemaker'. It features a sign-up screen. At the top, the time is 9:56. Below the status bar, there are two input fields: 'email' and 'password'. A 'Sign up' button is positioned below the password field.

Sign in / Sign up Page

Users must sign in when they access to app

If user do not have an account, user can simply sign up

View Pages

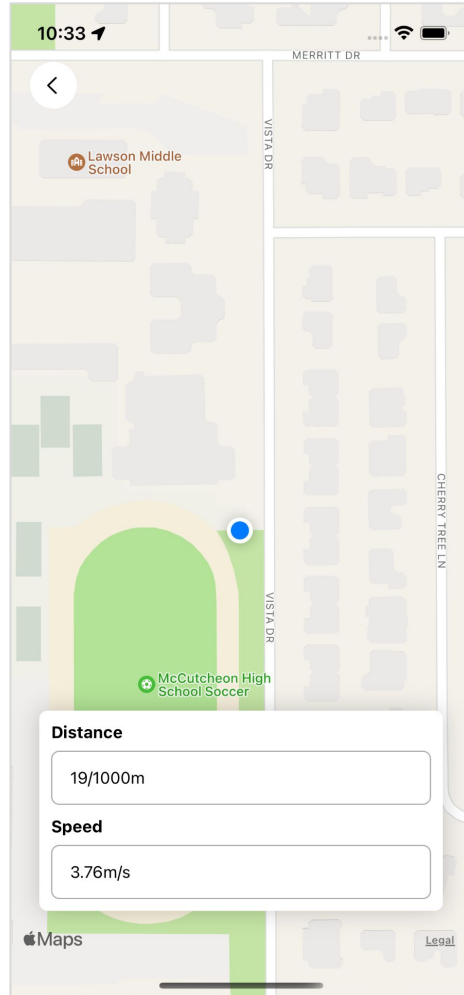
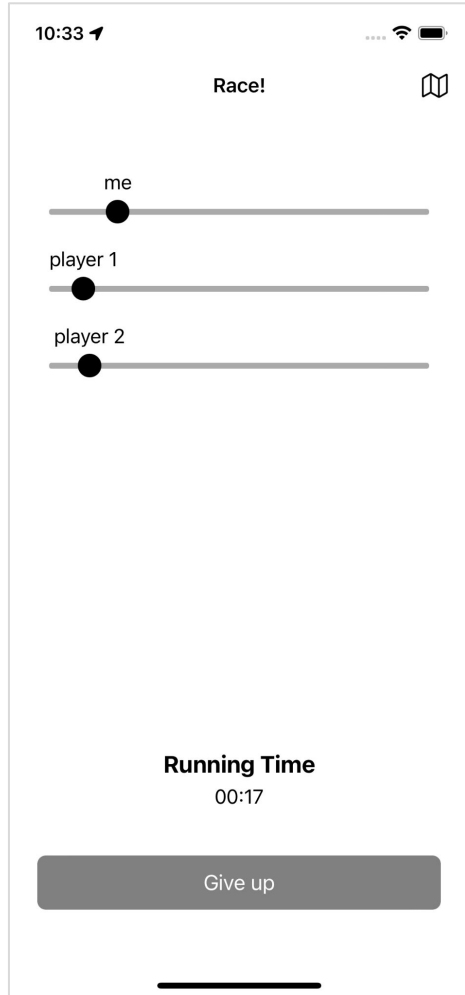


Main Page

Users can change running settings

Users can start matching and cancel also

View Pages



In-Game Page

Users can see other users' running information in real time

Users can check the remaining time and distance run, and can also check the mini map.

Challenges & Solutions

Resolved challenges & Solutions

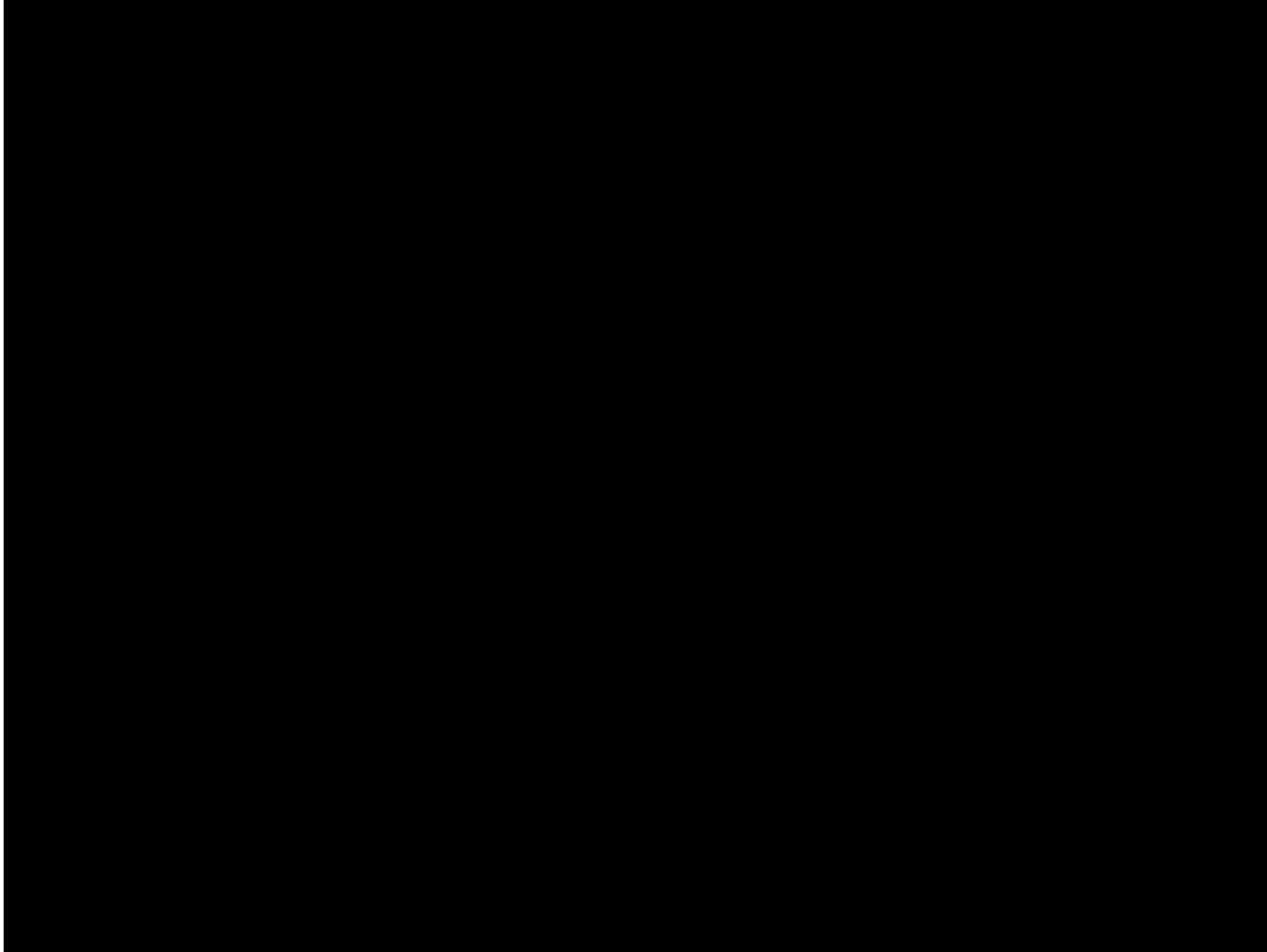
- Frontend architecture decision
 - using clean architecture
- Managing user auth
 - using jwt token spring security
- Application deploy
 - dockerizing, cloud service(aws)

Expected challenges

- Matching users with real time data
- Implementing matching algorithm
- Getting current location & running route with map
- Frontend-Backend connection using polling
- Vibrate & sound alarm when overtaken

#4

Demo



#5

Final draft

Signin / Signup Page

9:47

Pacemaker

email

email

password

password

Sign in

sign up

This mockup shows the Signin page of the Pacemaker app. The status bar at the top displays the time 9:47 and signal indicators. The app title "Pacemaker" is centered. Below it, there are two input fields labeled "email" and "password". A "Sign in" button is positioned below the password field, and a "sign up" link is located at the bottom of the form area.

9:56

email

email

password

password

Sign up

This mockup shows the Signup page of the Pacemaker app. The status bar at the top displays the time 9:56 and signal indicators. The page contains two input fields labeled "email" and "password". A "Sign up" button is centered at the bottom of the form area.

Match page

9:57

Match Start

Distance

1000m

Runners

2

Edit

9:58

Running Environments

Please select the distance you will run and the number of people.
After a match with anonymous people, it cannot be changed.

Distance

1000m

1500m

2000m

Number of runners

2

3

4

Confirm

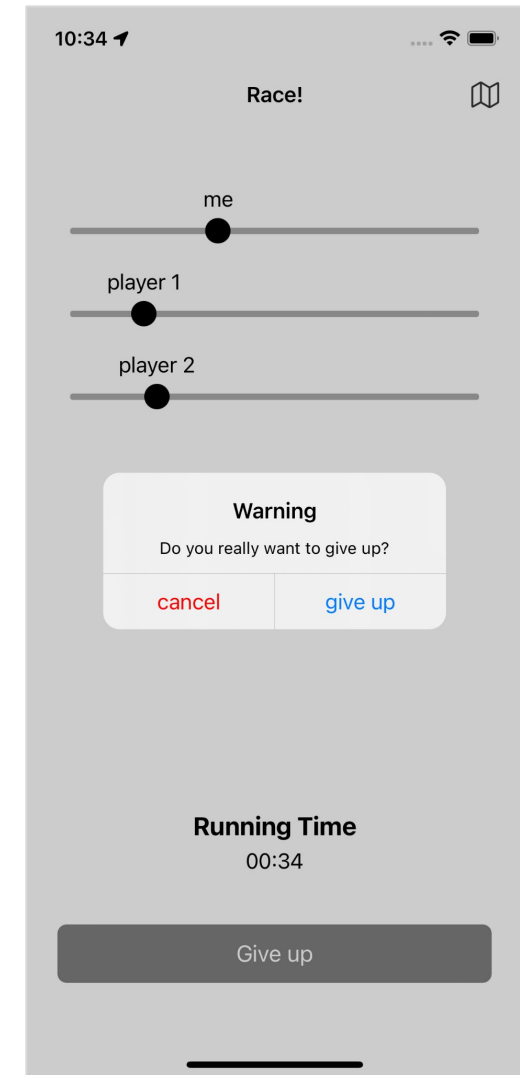
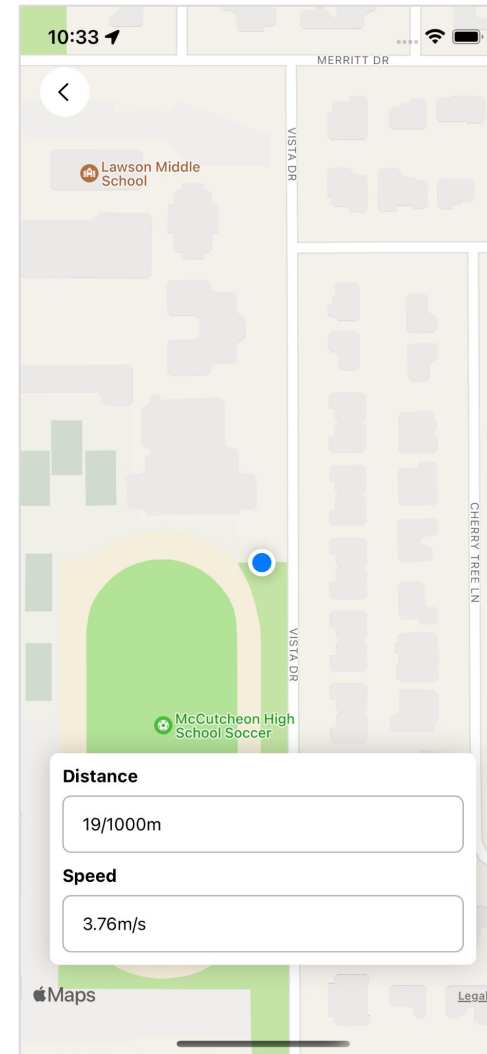
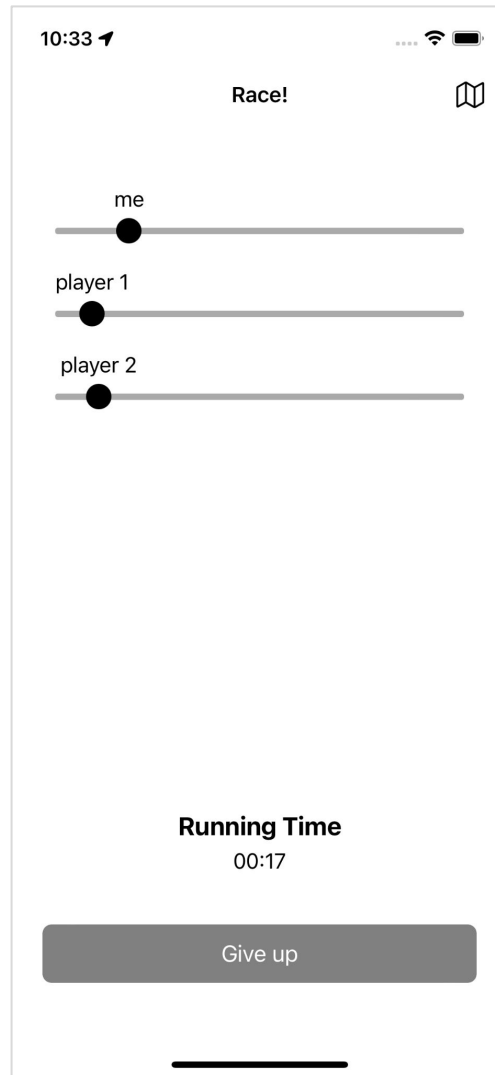
9:58

Finding Pacemakers...

Cancel

Final draft

Running page



Running history page

history

distance: 1000m
time: 5 min 48 sec
rank: 2 / 3

[detail >](#)

distance: 1000m
time: 5 min 48 sec
rank: 2 / 3

[detail >](#)

distance: 1000m
time: 5 min 48 sec
rank: 2 / 3

[detail >](#)

distance: 1000m
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[detail >](#)

distance: 1000m
time: 5 min 48 sec
rank: 2 / 3

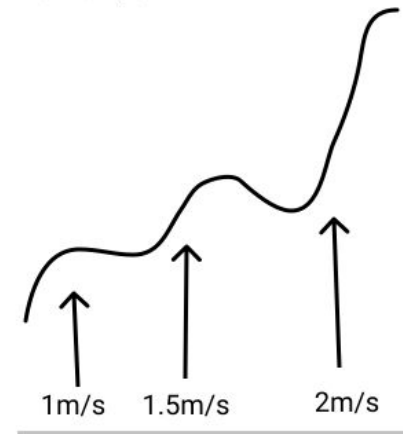
[detail >](#)

distance: 1000m
time: 5 min 48 sec
rank: 2 / 3

[detail >](#)[match](#)[history](#)[setting](#)[< history](#)

history detail

distance: 1000m
time: 5 min 48 sec
maximum speed: 2m/s
maximum acceleration: 2m/s²
rank: 2 / 3

[match](#)[history](#)[setting](#)

Success Criteria

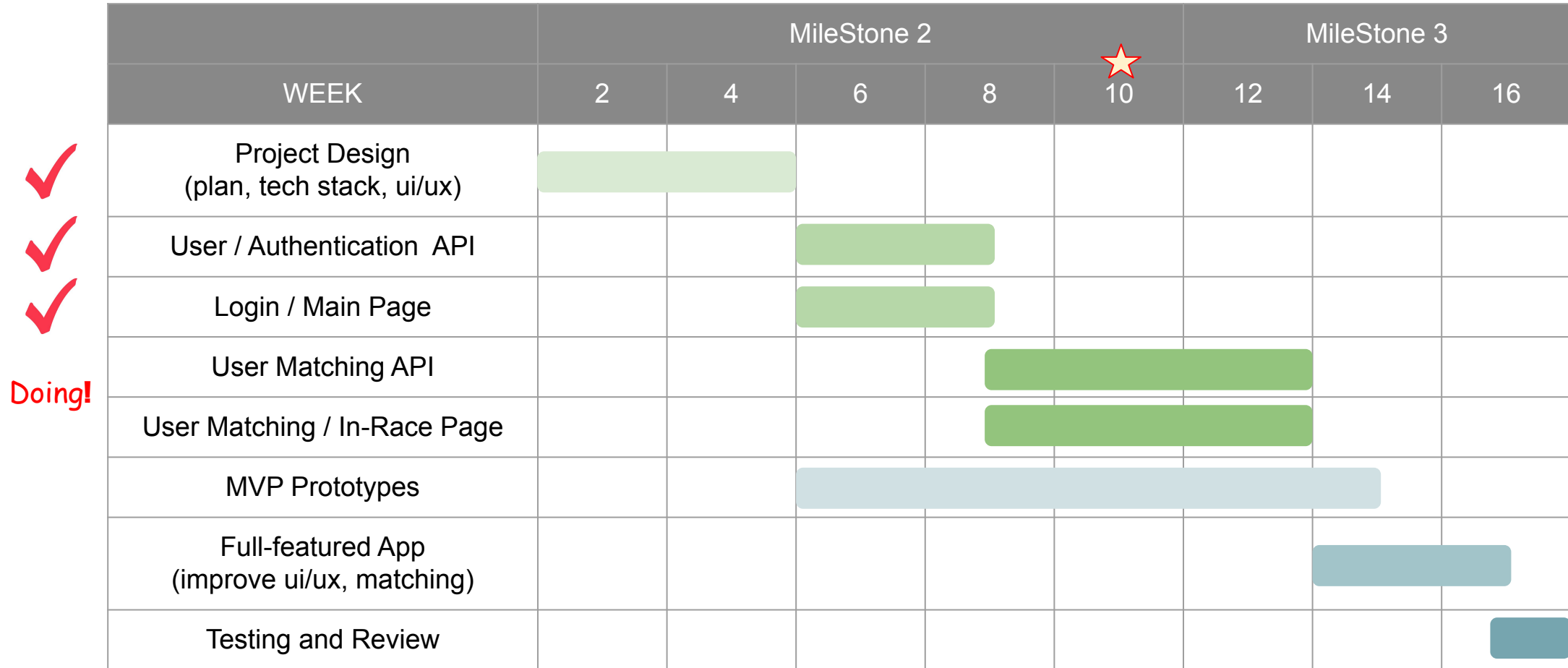
Key feature implementation

- Matching
 - real-time matching & queueing
 - operating with selected settings
- Running
 - representing accurate running information
 - representing accurate result & history
 - vibrate & sound alarm when overtaken

Qualitative criteria

- user learnability
 - usability
- 

Project Schedule



Project Schedule

		What did	What will do
FrontEnd(iOS)	이동현	<ul style="list-style-type: none">- base architecture construction- match / map ui/ux- login ui/ux- backend connection	<ul style="list-style-type: none">- match real-time data polling- managing user session
	이지원	<ul style="list-style-type: none">- pre-match ui/ux- signup process	<ul style="list-style-type: none">- match history ui/ux- pre-match polling- improve ui theme
Backend	서성호	<ul style="list-style-type: none">- Build basic structure of Backend- Jwt token authentication- Dockerize and Build on Aws ec2	<ul style="list-style-type: none">- Real-time user tracking- Cloud infrastructure
	이다운	<ul style="list-style-type: none">- Implement Userinfo / Auth API- h2 DB connection for testing- simple test code for verification	<ul style="list-style-type: none">- Real-time user tracking- Matching queue

감사합니다!

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