

# WanderEye - Project Report

Group 13

## Members

Rodrigo Lima - 98475

Camila Fonseca - 97880

**Github Link:** <https://github.com/Pengrey/ICM/tree/main/wandereye>

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# Motivation

The application is a gamified way to get people to move around and be more aware of their surroundings, or walking around with the help of random people we pass by down the street. Users take photos of places and upload them, creating challenges for other users, who have to try and go to the place where the photo was taken. The photos are shared when two users pass by each other, to encourage some social interaction and ensure the user never receives pictures from too far away.

# Solution

- 1) **Share challenges with other users**
  - a) (With data/wifi) Pass by a user, pass them a challenge token via nearby sharing feature, challenge is fetched from main server to the user's device;
- 2) **Complete challenges**
  - a) After receiving a challenge, locate the place the picture was taken on to complete the challenge.
- 3) **Create new challenges**
  - a) By selecting a photo of a place, a challenge is created with the location and uploaded to the game server. The user should add a Hint, which is sent to the people receiving the challenge.

Users are identified by a randomly generated english username that they can later change. However, this username is what ties uploaded challenges to their creator and used as a token for challenge sharing.

Challenges automatically expire and are deleted 24h after being received/created.

## Sensors & mobile functionalities

**GPS** - GPS coordinates will be used to check if the location of the user matches the place the photo was taken to award points and used to create new challenges;

**Camera** - Used to take photos to later share with other users;

**Nearby Sharing** - Used to share photos between users;

# Architecture

## Application structure

The application is composed of six main sections.

The primary section is the main one and is where the navbar and gps stream reside. For the GPS streaming, precise GPS location was used in the location stream for continuous location verification, used in challenge creation and challenge completion. If a challenge is completed, a popup will open informing the user.

The main page section was used for querying, fetching new challenges shared to the user and challenge displaying. If a challenge is outdated or a new one is received, the main page will either remove it or add it to the view respectively.

For the challenge creation section, it uses the camera to take a photo and later on it fully creates a challenge with a hint and the location where the challenge photo was taken. This created challenge later is sent to the main server to be hosted and shared with other users via tokens.

For the nearby sharing section, it uses the nearby sharing feature present on android phones, this feature enables two consenting users to broadcast and connect to each other to share data. The feature is used to share a user token so that the receiver can query the server and retrieve the challenge the sender created that day. While querying challenges it is also checked if challenges are out of date, challenges have a TTL of 24h.

For the scoreboard page it is only used static data, this is due to time constraints but the page is ready to display dynamic data, it displays a list of the top users of the game.

Finally for the settings page, the page enables the user to change their auto generated english name for a custom one. The name is persistent using the local preferences library.

# Overall Assessment

Overall, the application's core functionalities were successfully implemented, even if some functionality aspects could be improved, such as more feedback on user actions.

## + The Good

- + GPS/Location system is more than adequate for our purposes and fairly accurate.
- + Nearby Sharing works very well and is reliable for token sharing.
- + Relying on an external server simplifies passing challenge data from one device to another.

## ± The OK

- ± When updating the local challenge list, it can take longer than usual and might not be reliable, usually working without needing to reload the widget, but sometimes not.
- ± The chosen storage/persistence system works, and well, but is not the most adequate for this use case.
- ± Due to images being fetched from the server, the application will not display the pictures offline, requiring a constant internet connection to work.

## - The Bad

- Due to the high sensor requirements, the app will consume a fair amount of battery (nearby sharing for challenge token sharing, GPS for location and Data for communication with server)
- The app is lacking some important usability features, namely feedback on user actions so it's apparent *something* is happening in the background.
- The scoring system/leaderboard had to be scrapped due to time constraints.

## Contributions

|                      | <b>Camila - 50%</b>   | <b>Rodrigo - 50%</b>  |
|----------------------|---|---|
| Appearance/Structure | Home Page Screen<br>Create a Challenge Screen<br>View Challenge Screen        | Nearby Share Screen<br>Scoreboard Screen<br>Settings Screen<br>Challenge Complete popup |
| Functionalities      | Create Challenges<br>Data Storage/Persistence<br>Camera usage<br>Cloud Server | Nearby Share<br>Settings<br>Geolocation Stream  |
| Time                 | +25h  | +25h  |

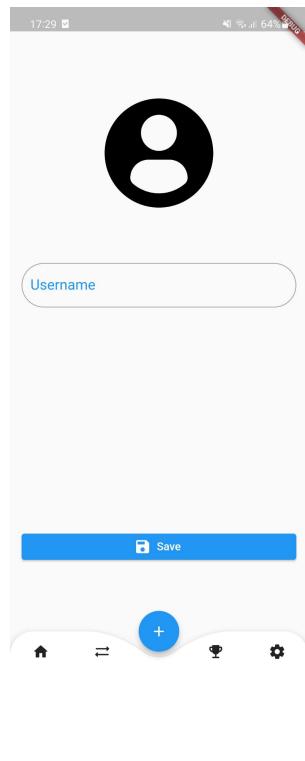
# Tutorial

The tutorial will guide the work flow used for a normal user to use the application.

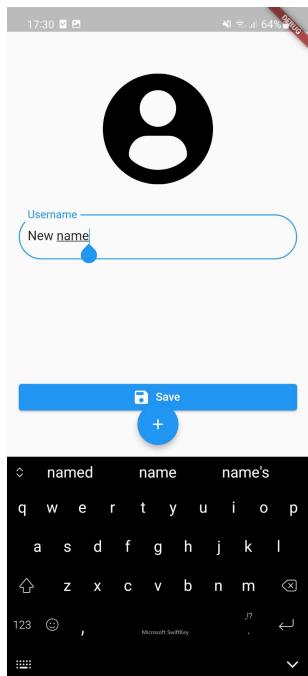
## Change username

After opening the wandereye application for the first time, the user will be assigned a random name generated by the application.

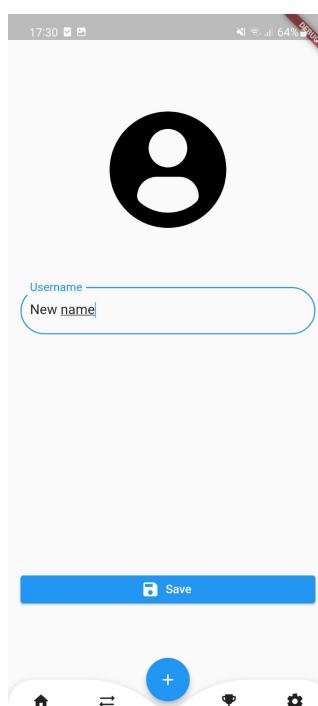
To change the name the user can go to the settings page by choosing the gear icon on the navbar.



Then inputting the new name on the field.

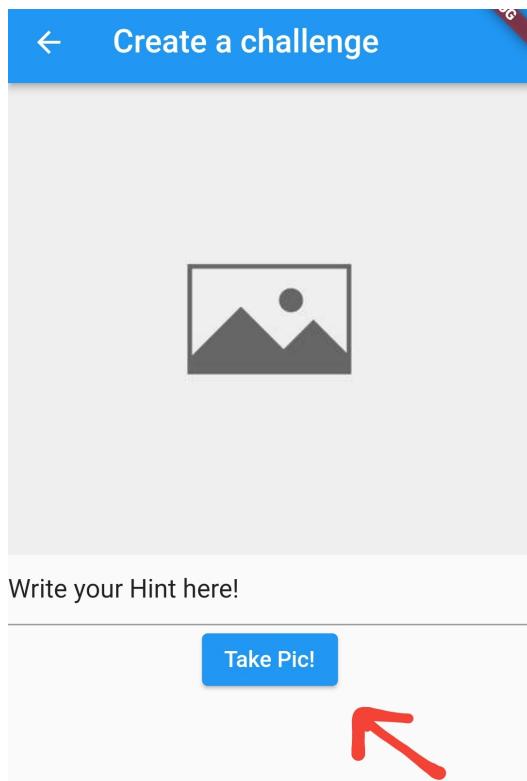


Finally the user saves it by clicking the save button.



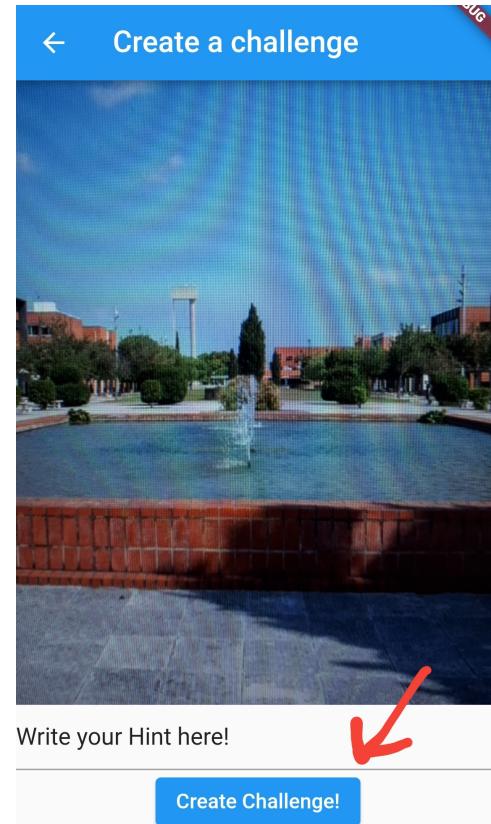
## Create challenge

To create a challenge the user clicks the '+' button in the bottom navbar.



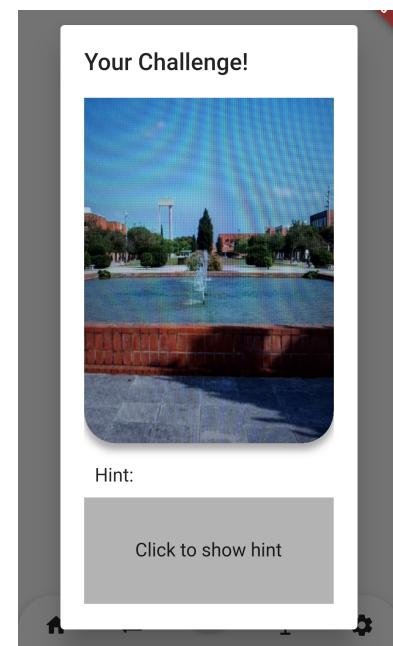
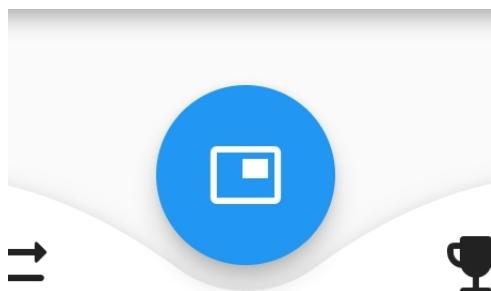
Then, they type in a hint for their challenge, if they want to, and press the 'Take Pic' button.

After taking a picture, it will show up on this screen, like shown below:

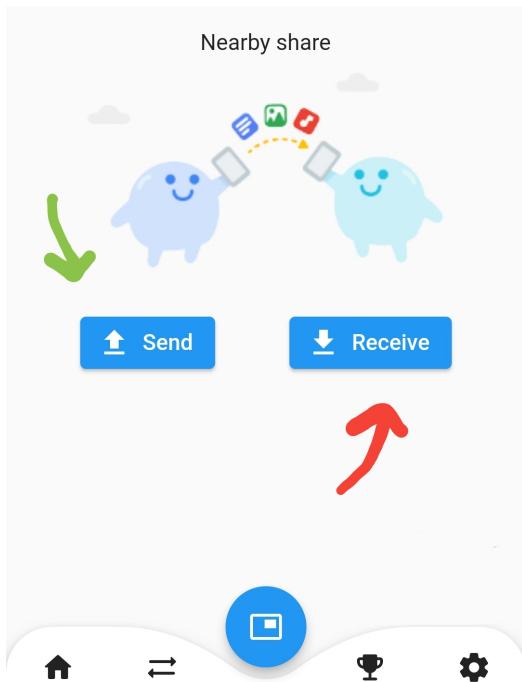


To complete the Challenge Creation process, just click the 'Create Challenge' button.

The user can see their newly-created challenge by clicking this button, which will automatically change when a challenge has been created.



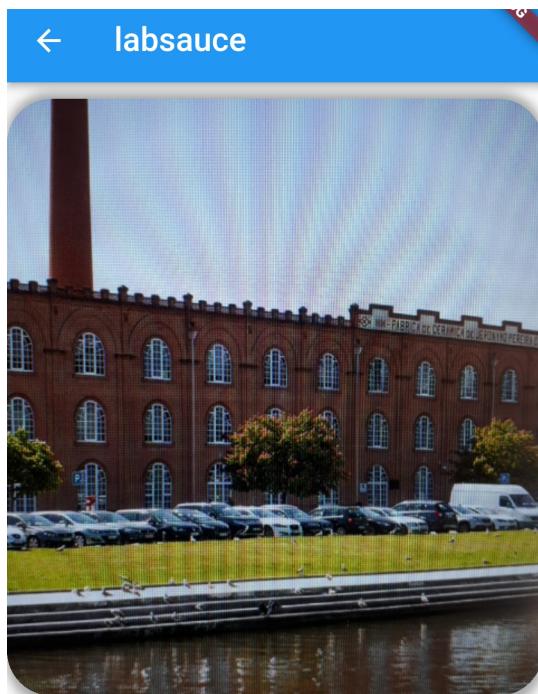
## Share challenge



To share a challenge, two users must approach their devices. Whoever's sharing should press 'Send', and the receiver should press 'Receive'. After a bit, the receiver should have a new challenge in their main page!

## View challenge

To view a challenge, the user needs only to click its picture on the main screen.



To return to the main page, the user needs only to click the arrow.

Clicking on the grey area will reveal the hint set by the challenge creator.

->



## Complete challenge

To complete a challenge, a user should find the location where the challenge's picture was taken from. They will know the challenge was completed via a popup, and said challenge should disappear from the challenge list, in the main menu.



Congratulations!

You found me :D

Yay