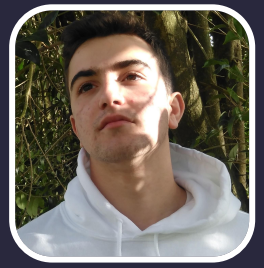
/FotoFaces

Licenciatura em Engenharia Informática
Projeto de Informática
Grupo 01

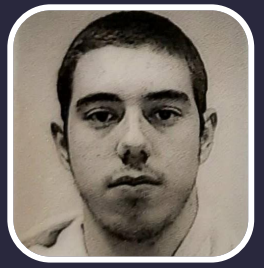
/Team


Vicente Costa


Pedro Lopes


Filipe Gonçalves


João Borges


Gonçalo Machado

Advisors


António Neves


José Vieira


Daniel Canedo

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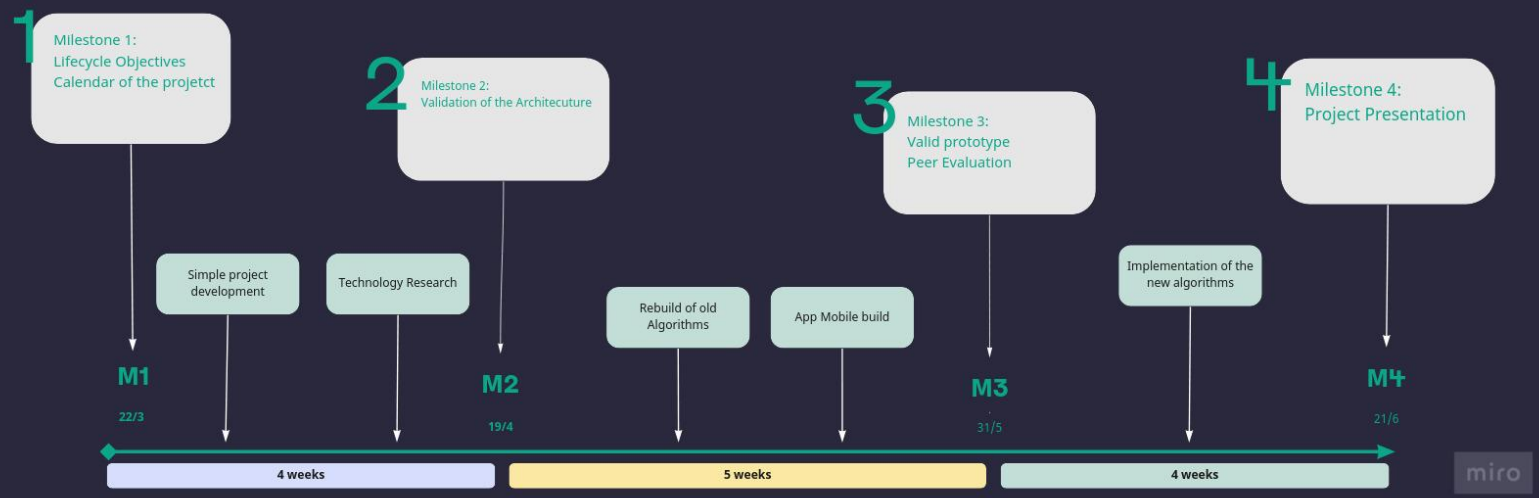

1
Milestone 1:
Lifecycle Objectives
Calendar of the projetct
2
Milestone 2:
Validation of the Architecuture
3
Milestone 3:
Valid prototype
Peer Evaluation
4
Milestone 4:
Project Presentation
Simple project development
Technology Research
Rebuild of old Algorithms
App Mobile build
Implementation of the new algorithms
M1
22/3
M2
19/4
M3
31/5
M4
21/6
4 weeks
5 weeks
4 weeks
miro

/01 → /Introduction

Platform used by the University of Aveiro

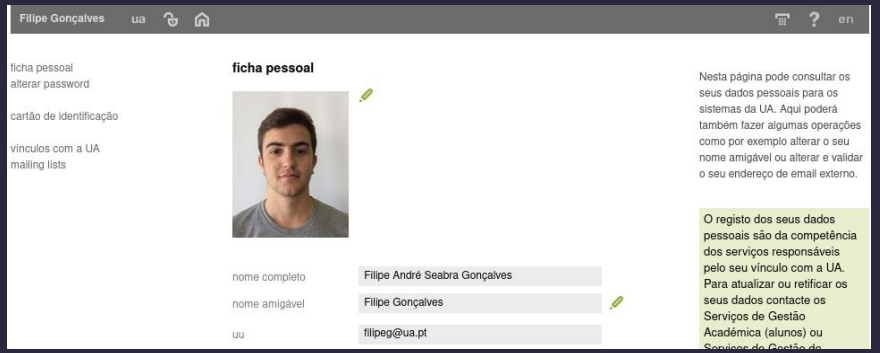
- id.ua.pt

Only some people can alter the information

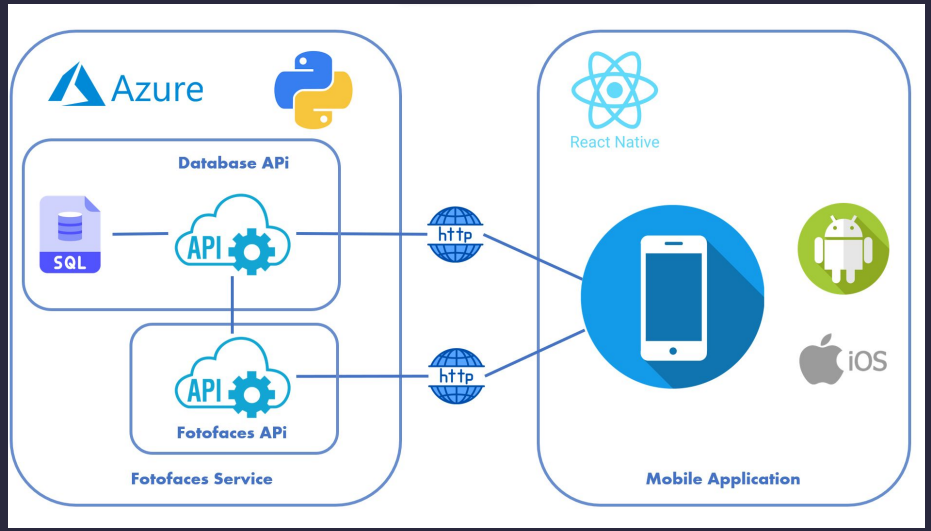
- Human Resources
- Administration Staff

Objective:

- Create a simple way for everyone to update the information



/02 → /Architecture



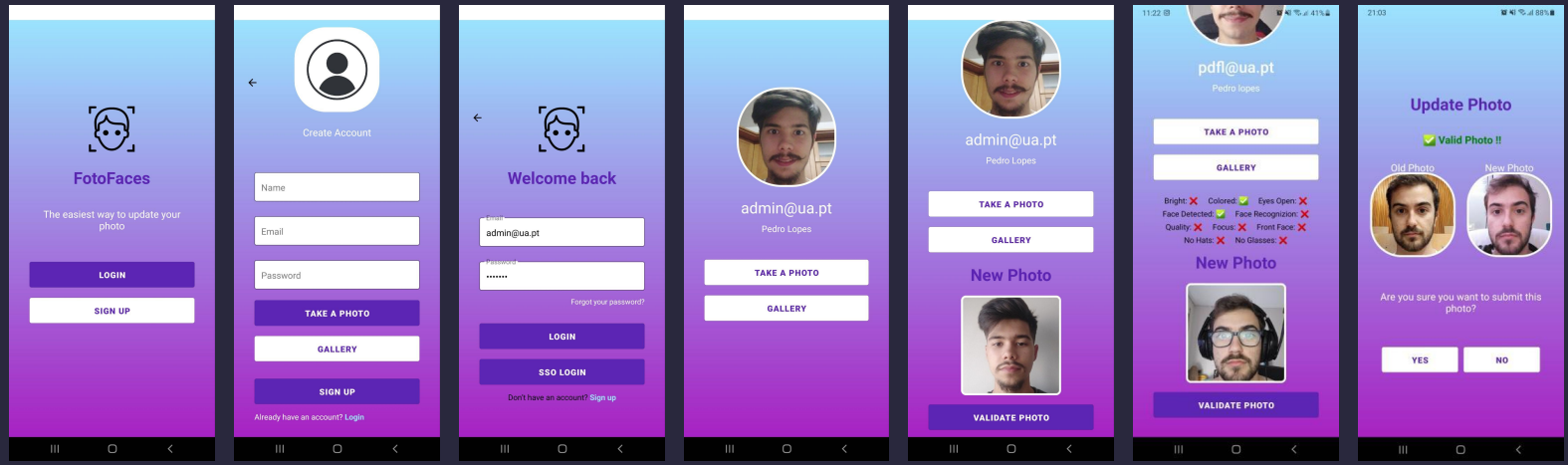
Three Layers:

- Database
- FotoFaces API
- Mobile App

Communication using HTTP requests

Deployment with an Azure Virtual Machine

/03 ⟶ /Mobile_App



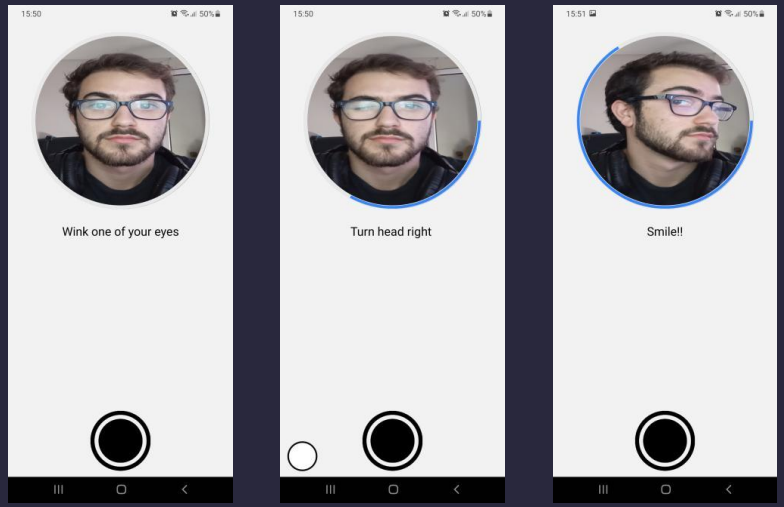
/03 ⟶ /Mobile_App

⟶ /Live_Detection

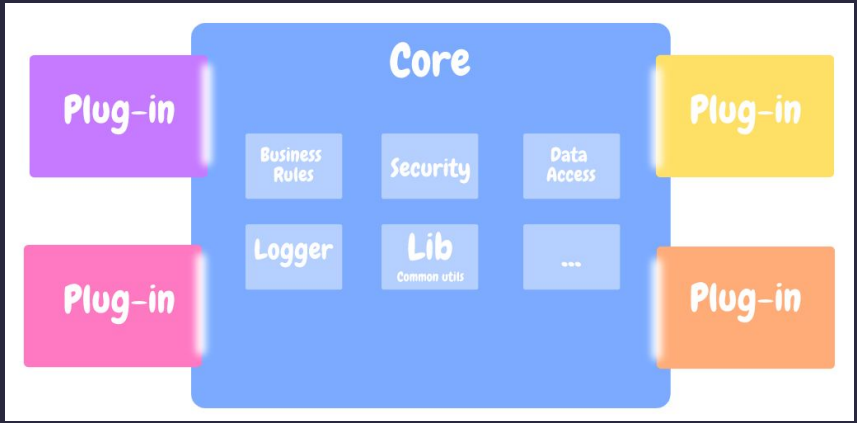
Three Steps:

- Wink an eye
- Turn head to the right
- Smile

Implemented using expo package



/04 → /FotoFaces → /Plugin_Architecture



Using the Plugin Engine package

Assures that we are only evaluating essential parameters

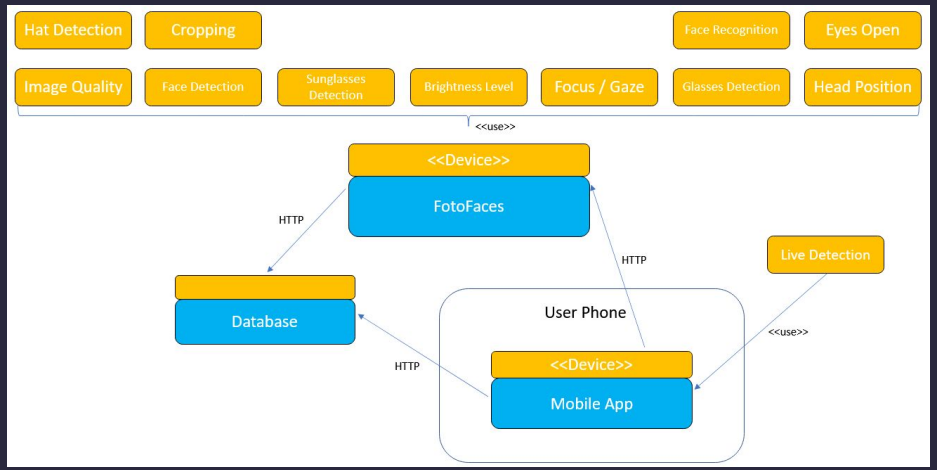
- Run Plugins, only if the important ones returned good values

Flexible and versatile

- Add/ remove algorithms by the system needs

/04 → /FotoFaces → /Algorithms

- Hat Detection
- Glasses Detection
- Sunglasses Detection
- Cropping
- Image Quality
- Face Detection
- Face Recognition
- Brightness Levels
- Focus / Gaze
- Eyes Open Detection
- Head Position



/04 → /FotoFaces → /Algorithms

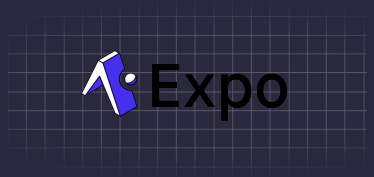
Best and worst values returned by the algorithms

Hat Detection	Glasses Detection	Sunglasses Detection	Cropping	Image Quality	Face Detection
True/False	True/False	True/False	Image cropped	0 - infinite	Shape

Face Recognition	Brightness Levels	Focus / Gaze	Eyes Open Detection	Head Position
0 - 1	0 - infinite	50 - 100	0.10 - 0.50	0 - infinite

/05 → /Limitations

- Connection between Services
  - Kafka Implementation
  - HTTP requests messaging
- Live Detection
  - Many solutions didn't work
  - Camera crashes
- Containerization
  - Azure Deployment
  - FIxed Credits by year



/06 → /Results

Mobile App

FotoFaces API

Database

/Properties

Best and worst values to the properties in the Mobile App

Hat Detection	Glasses Detection	Sunglasses Detection	Cropping	Image Quality	Face Detection
False	False	False	Image cropped	< 0.36	True

Face Recognition	Brightness Levels	Focus / Gaze	Eyes Open Detection	Head Position
< 0.60	> 100	> 70	> 0.20	< 20

/Expected Results

{"Colored Picture": "true", "Face Candidate Detected": "true", "Cropping": "true", "Crop Position": [132, 794, 1607, 2269], "Resize": 0.3389830508474576, "Brightness": 113.08730895829416, "Eyes Open": 0.2881650955676208, "Face Recognition": 0.7769746218840693, "focus": 89.67355096602265, "Glasses": "false", "Hats": "false", "Head Pose": [0.7960591256446805, 1.1131002599945008, 4.28629419442011], "Image Quality": 0.0, "Sunglasses": "false"}

{"Colored Picture": "true", "Face Candidate Detected": "true", "Cropping": "true", "Crop Position": [132, 794, 1607, 2269], "Resize": 0.3389830508474576, "Brightness": 113.08730895829416, "Eyes Open": 0.2881650955676208, "Face Recognition": 0.0, "focus": 89.67355096602265, "Glasses": "false", "Hats": "false", "Head Pose": [0.7960591256446805, 1.1131002599945008, 4.28629419442011], "Image Quality": 0.0, "Sunglasses": "false"}

/Future_Work

- Single Sign-On Implementation
- Live Detection Improvement
- Improve some algorithms
  - Hat Detection
  - Image Quality
- HTTP connection to HTTPS
- Code Refactoring
- CI/CD Pipeline