Preface

This document is indented to the project manager and developers of the application.

Introduction

Hafyz is a smart Android app designed to help Alzheimer patients and their families by using machine learning algorithms such as computer vision (CV) and natural language processing (NLP). It helps the patients by reminding them of faces, names, locations, and answers they may fail to recall on their own otherwise. One way the app helps the family is by keeping track of the location of their patient family member at all times.

User Requirements

1. The user shall register to the system
2. The user shall log in to the system
3. The user shall upload images for ones who want the system to recognize them
4. The user shall give some info about the person on the image, his name, relative... etc
5. The user shall direct the mobile camera to one who wants to recognize
6. The user shall set his home location
7. The user shall be able to see a tracking line from home to the destination
8. The user shall add, delete and update and set a reminder for tasks

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System Requirements

Functional Requirements

1. -The system shall register the user in the database

2. -The system shall identify the user and give him access to the system

3. -The system shall ask the user to give him access to upload images
   -The system shall save these images in the database
   -The system shall connect between the database and the face recognition system
   -The system shall take these images as input to the face recognition system to train
   -The system shall save the trained model in the database

4. -The system shall save this data to the database with image
   -The system shall connect between the database and the text-to-speech system
   -The system shall convert text to voice and save voice to database

5. -The system shall ask the user to give him access to the camera and microphone
   -The system shall recognize the people in the image
   -The system shall label the person in the image with his name and some info about it
   -The system shall say this labelled info in clear voice to the user

6. -The system shall ask the user to give access to the location
   -The system shall record the home location as the primary location
   -The system shall display a mark on that location

7. -The system shall update the new location every 10 seconds as the destination
   -The system shall draw a line between the primary location and destination

8. -The system shall save the tasks in a queue based on time
   -The system shall delete tasks when user delete them
   -The system shall update tasks when user update them
   -The system shall show a calendar with date and time
   -The system shall save the setting reminder
   -The system shall save this text to the database
   -The system shall convert this text to voice
   -The system shall notify the user in the specific time about tasks by voice

Non-Functional Requirements

1. The system should be available for 24/7
2. The system should be easy to use with a good looking interface
3. The system should be built for smartphone users
4. The system should be updatable
5. The system should be able to syncs

Title: Upload images
Primary Actor: Caregiver
Secondary Actor: Patient
Scenario:
1. The system identifies the user.
2. The user upload image or multiple images
3. The system saves images in the database
4. The system confirms that images were uploaded successfully

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Title: Give info
Primary Actor: Caregiver
Secondary Actor: Patient
Scenario:
1. The user provides some info about the person in the uploaded image
2. The system saves this info to database
3. The system confirms that the info was saved successfully

Title: Recognize people
Primary Actor: Patient
Scenario:
1. The system identifies the user
2. The user directs the mobile camera to the person
3. The system label that person with info
4. The system says to info about that person

Title: Display the location
Primary Actor: Caregiver
Secondary Actor: Patient
Scenario:
1. The system identifies the user
2. The user set his home location as the primary location
3. The user gives access to his location
4. The system displays a mark on the map with user location
5. The system update and save the location every 10 seconds
6. The system notifies the user about the new location

Title: Display a tracking line
Primary Actor: Caregiver
Secondary Actor: Patient
Scenario:
1. The system identifies the user
2. The user gives access to his location
3. The system updates and saves the current location as the secondary location
4. The system calculates the distance between the primary and secondary

5. The system displays a line between the primary and secondary location
6. The system displays the distance and time between the two destinations

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Title: Add task
Primary Actor: Caregiver
Secondary Actor: Patient
Scenario:
1. The system identifies the user
2. The user adds a new task
3. The system displays the tasks in a queue
4. The user continues adding new tasks
5. The system displays the last task in top of the queue

Title: Delete a task
Primary Actor: Caregiver
Secondary Actor: Patient
Scenario:
1. The user selects a task to delete it
2. The system deletes that task and removes it from the queue
3. The system updates the queue

Title: Update task
Primary Actor: Caregiver
Secondary Actor: Patient
Scenario:
1. The user edits the selected task
2. The system updates the task and displays the new task
3. The system updates the queue

Title: Set a reminder
Primary Actor: Caregiver
Secondary Actor: Patient
Scenario:
1. The system displays the date and time of the task
2. The user sets the reminder
3. The system saves the reminder

Title: Notify a task
Primary Actor: Patient
Scenario:
1. The system notifies the user with the task with a voice
2. The user chooses between snooze or done
3. The system snooze the task in case the user chooses snooze
4. The system moves the task from the uncompleted queue to completed tasks in case the user chooses done

User Stories

As a caregiver, I want to be able to upload images of loved ones so that my patient be able to know them when directing the mobile camera to them

As a patient, I want to be able to upload images of loved ones so that I'm being able to know them when directing the mobile camera to them

As a caregiver, I want to be able to input name and relatively of the person in the image so that my patient be able to know info about that person

As a patient, I want to be able to input name and relatively of the person in the image so I'm being able to know info about that person

As a patient, I want to know and listen to info about a person who I direct my mobile camera to it to be able to know it without making him tell me

As a caregiver, I want to be able to show and notified with my patient current location so that I can track them in case they were outside the house

As a patient, I want to be able to show my current location on the map and know how it far from my home so I can return back to my home

As a caregiver, I want to show and track my patient current location and how it far from home, so that I can track where he is going
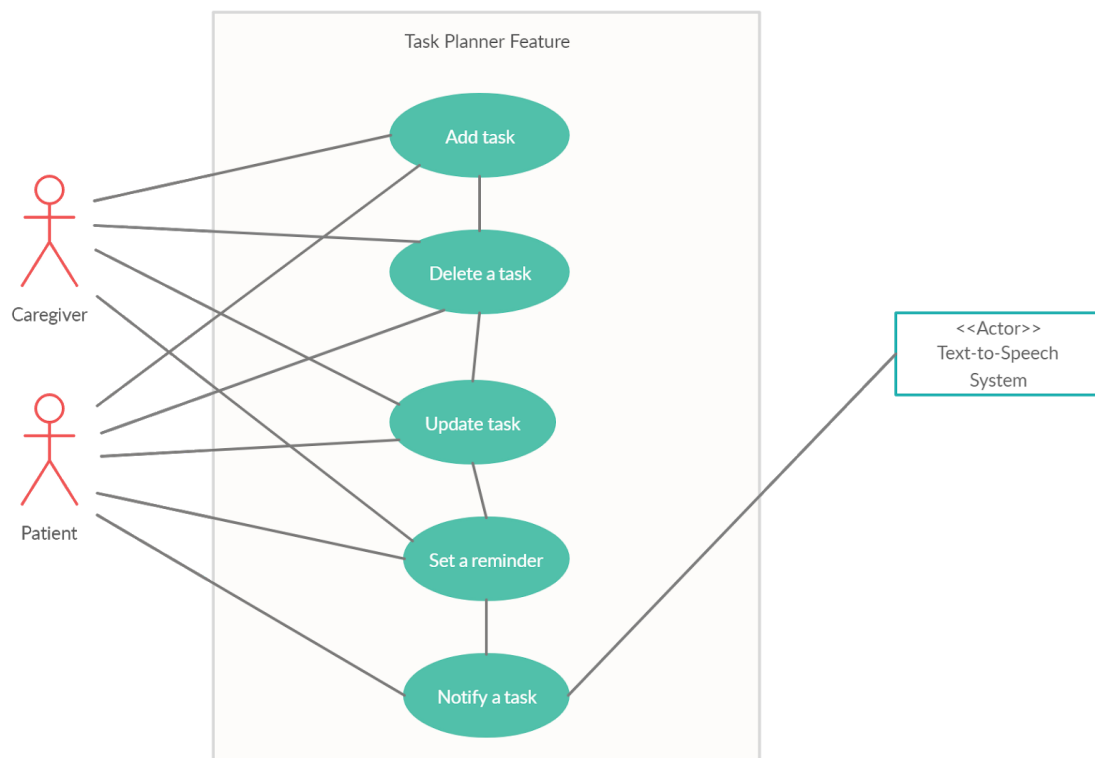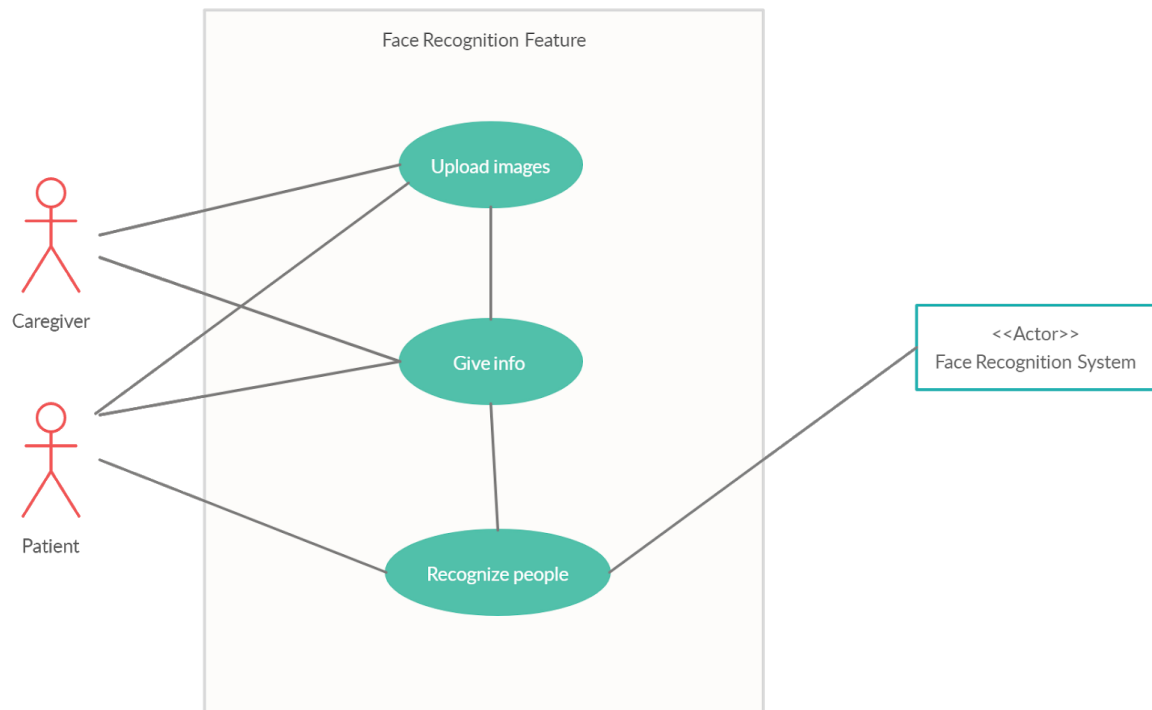
As a patient, I want to show a line between my current location and home, so that I can return back to my home in case I was lost
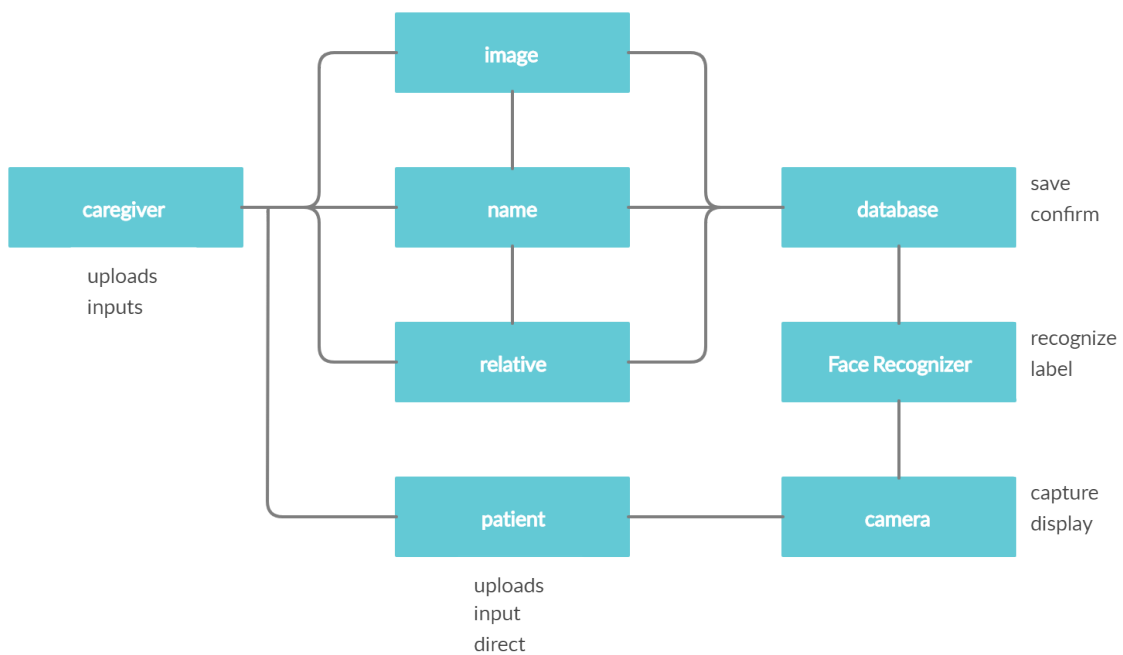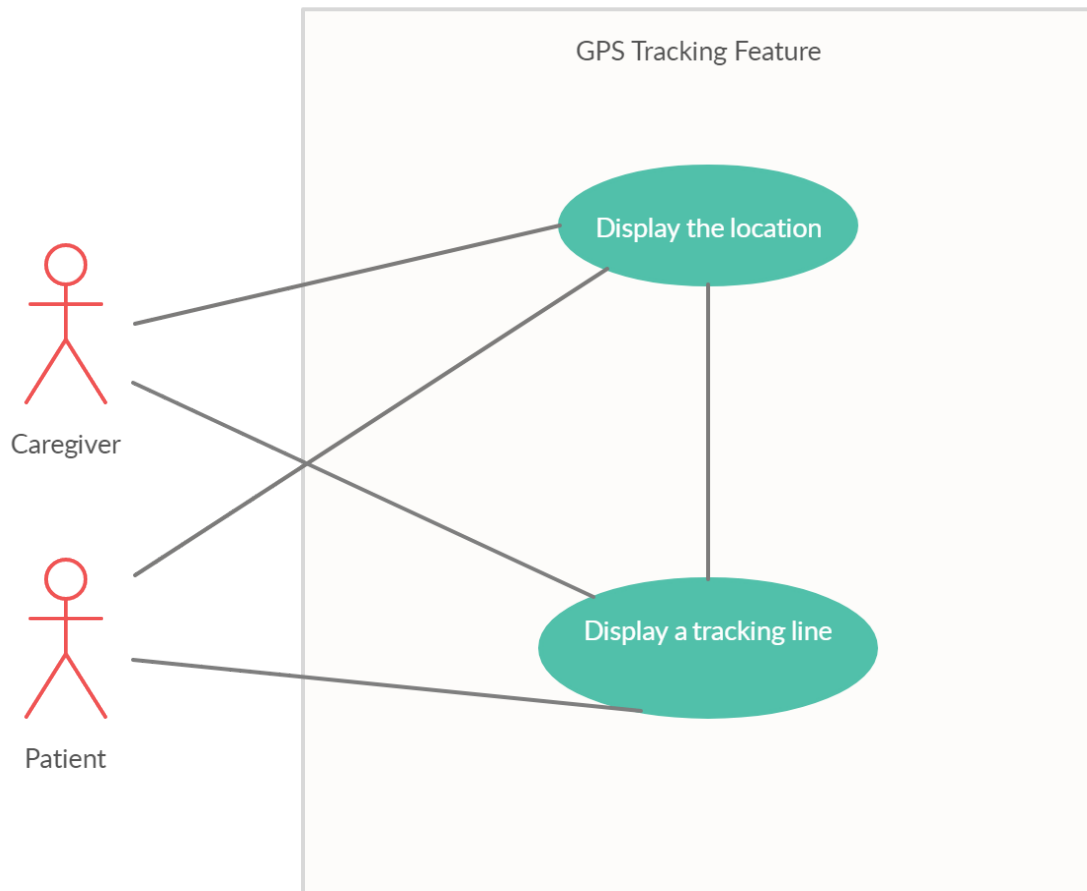
As a caregiver, I want to add, delete and update and set a reminder of the tasks, so that I can set tasks to my patients and the system notifies him

As a patient, I want to add, delete and update and set a reminder of the tasks, so that I can set tasks and the system notifies me

System Architecture

System Models

Face Recognition Feature

Caregiver

Patient

Upload images

Give info

Recognize people

<<Actor>>
Face Recognition System

Task Planner Feature

Caregiver

Patient

Add task

Delete a task

Update task

Set a reminder

Notify a task

<<Actor>>
Text-to-Speech
System

GPS Tracking Feature

Caregiver

Patient

Display the location

Display a tracking line

image

caregiver

uploads
inputs

name

relative

patient

uploads
input
direct

database

save
confirm

Face Recognizer

recognize
label

camera

capture
display