



## Abstract

An app to help patients perform prescribed home exercise programs. The project aims to help people in need of physiotherapy by performing knee and arm exercises at home using computer vision and machine learning for the camera so that it can perform pose estimation and detect position when performing exercises, illustrating a counter that calculates both correct and incorrect movements, and showing them an error alert sound when making an incorrect movement.



## Objective

Perform physical therapy exercises correctly.

It saves time and reduces the patient's risk of making occasional mistakes.

Motivating patients and increasing commitment while performing exercises.



## Methodology

- Architecture Design.
- Prototype Design.

- Unit Test.
- System Testing.
- Integration Testing.
- Usability Testing.

### Design

### Testing



### Requirement

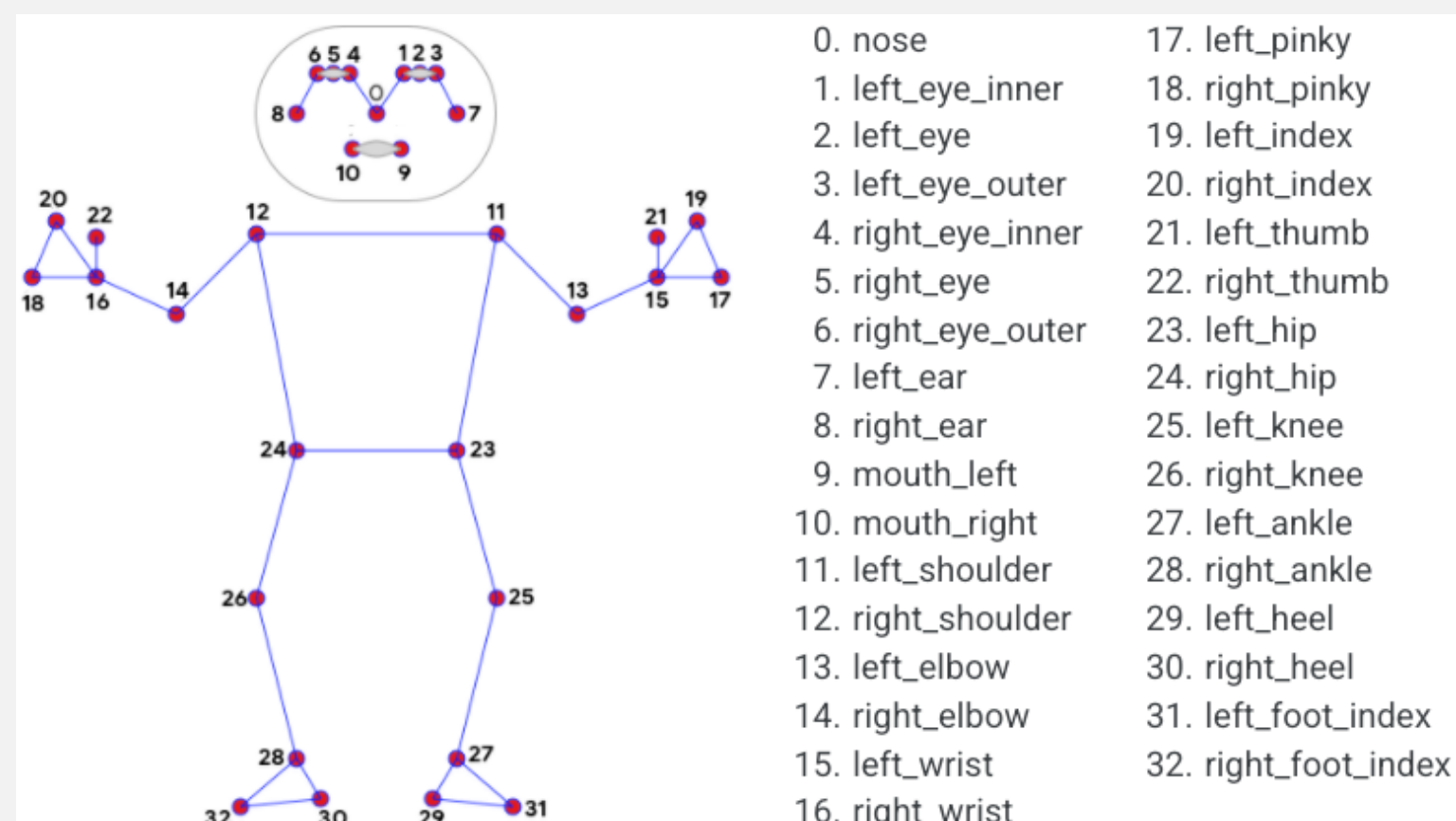
- Requirement Gathering.
- Requirement Analysis.
- Draw UML Diagram.

### Implementation

- Yolo.
- Medai pipe Model.
- Interfaces.
- database.



## Dataset



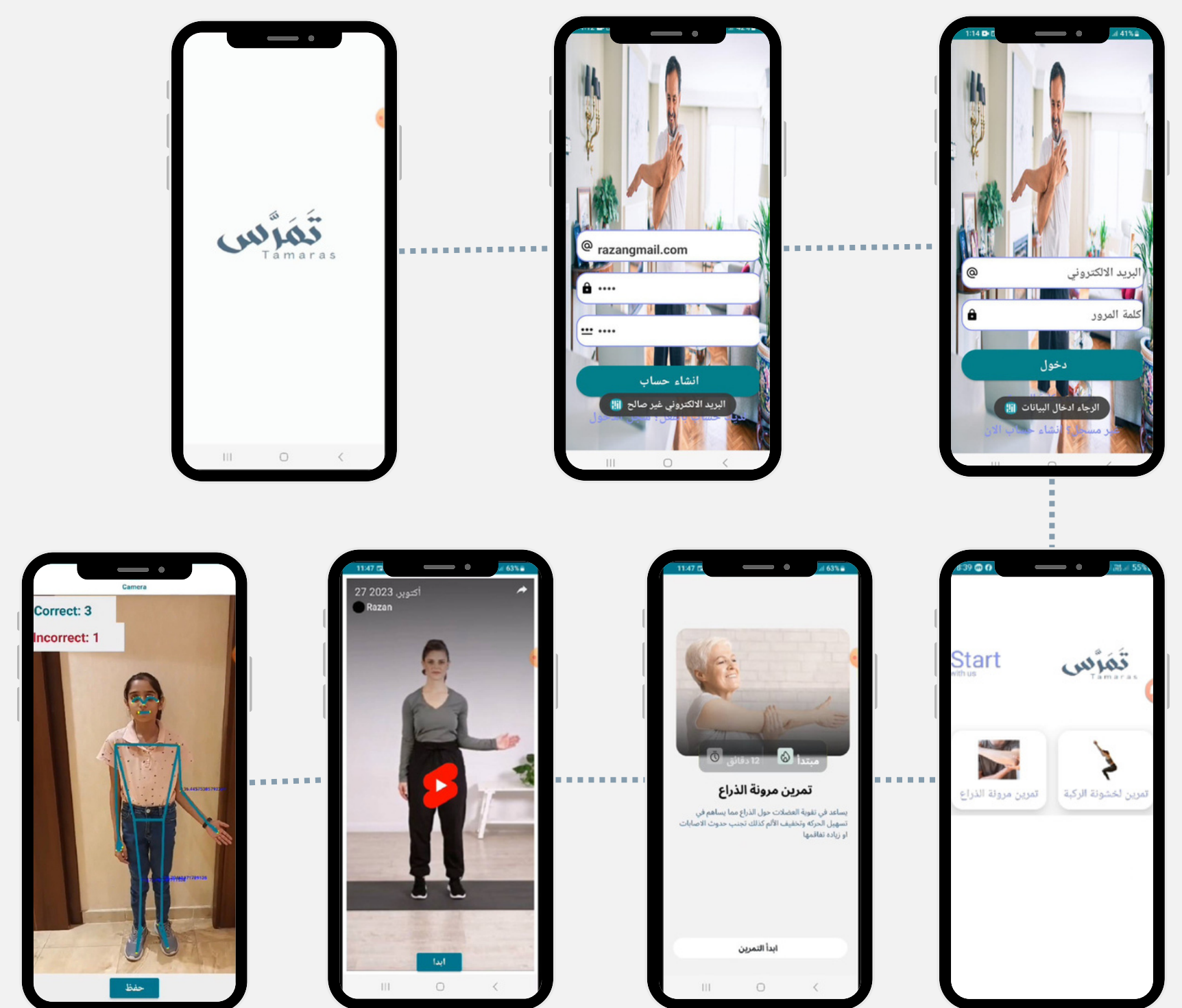
The pose landmarker model tracks 33 body landmark locations, representing the approximate location of the following body parts.



## Tools

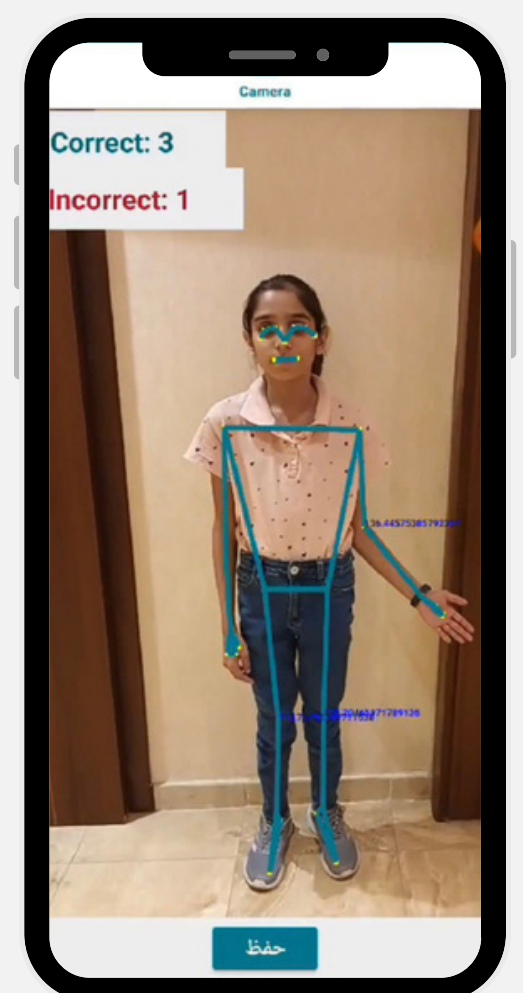


## Interfaces



## Result

The results interface in the application helps patients visualize specific body points and calculate their position. The first exercise has a 96% accuracy rate, with an increase in correct counters with correct performance. The second exercise has an 89% accuracy rate, based on experimental tests for different ages and situations.



## Conclusions

our project Tamaras Application physiotherapy exercises using machine learning and computer Vision intends to bring an innovative approach to the problem of not continuing to do physiotherapy exercises by using a smart application that uses a camera to recognize human body parts. In addition, we used the Media Pipe landmark to capture user motions during exercise and compute the number of erroneous and correct postures based on user performance.



Reference



Contact



Demo