AI Fitness Trainer

*Progress Report #7*

# TL; DR

**On track (*Github:***[*AI-FitnessTrainer*](https://github.com/aminuabdusalam/AI-FitnessTrainer)*)***.** Completed trainer for **pushups** exercise by **10/16.**

# Project Goals (Recap)

The goal of the project can be summarized as developing an **AI fitness trainer** embedded with **storage and recommender systems** and an **AI virtual mouse**.

The AI fitness trainer will help the user lose weight, gain muscle, and accomplish other fitness goals. In addition, it'd attempt to understand the client goals, develop a fitness routine, recommend a healthy eating plan, and ensure all exercises are performed correctly.

# Highlights

**Completed trainer for pushups (**[Pull Request #3 · aminuabdusalam/AI-FitnessTrainer (github.com)](https://github.com/aminuabdusalam/AI-FitnessTrainer/pull/3))

* Modified curls trainer to handle the use of both arms one after the other and updated proposal to accommodate plan to build website. ([Pull Request #2 · aminuabdusalam/AI-FitnessTrainer (github.com)](https://github.com/aminuabdusalam/AI-FitnessTrainer/pull/2))
* Created trainer for pushups (pushups.py) – class contains methods for finding angles between both arms and counting number of “successful/correct” pushups based on the posture of both arms.
* Modified program (trainer.py) to ask user for choice of exercise and present/adapt a frontend for checking the exercises based on the user’s input.
* Set up program to capture video from webcam input in addition to its previous capability of detecting pose in saved images/video.
* As shown below, trainer now works for both **curls** and **pushups**:

A picture containing text, person, wall, indoor

Description automatically generated Graphical user interface, application

Description automatically generated

# Lowlights

None

# Next Steps

* Complete Trainer for **squats** exercise by **10/25.**
* Utilize program to capture live training sessions in a gym/similar environment by **10/25**.

# Timeline

This section lists the milestones of the project spread across two semesters (Fall 2022 and Spring 2023).

|  |  |  |  |
| --- | --- | --- | --- |
| **Milestones** | | **ETA** | **Status** |
| **Requirements Gathering** (Project Idea, Project Proposal) | | 08/22 | Completed |
| **Design Exploration** (Setup and Installation of necessary technologies, Addition of Project to remote repo, Skill Preparation, Framework Project) | | 08/29 | Completed |
| **Implementation** | Complete Pose Estimation Build | 09/19 | Completed |
| Complete AI Personal Trainer for **Curls** | 10/11 | Completed |
| Complete AI Personal Trainer for **Pushups** | 10/18 | **Completed** |
| Complete AI Personal Trainer for **Squats** | 10/25 |  |
| Partly Complete Basic Storage System Build | 10/31 |  |
| **Quality Testing** | | 11/7 |  |
| **Midpoint Presentation Draft** | | 11/14 |  |
| **Midpoint Demo & Report** | | 11/21 |  |
|  | **WINTER BREAK** | | |
| **Project Review** (Current status and Re-evaluation of Next Steps as Needed) | | 01/16 |  |
| **Implementation** | Complete Storage System Build | 01/30 |  |
| Complete Recommender System Build | 02/20 |  |
| Complete Frontend/Website (Stretch Goals) | 03/13 |  |
| Complete Hand Tracking Build (Stretch Goals) | 03/13 |  |
| Complete AI Virtual Mouse Build (Stretch Goals) | 03/27 |  |
| **Quality Testing** | | 04/3 |  |
| **Final Presentation Draft** | | 04/10 |  |
| Final Demo & Report | | 04/17 |  |