ISEIC'2022 Proposal Template

A. Proposal Information

Project title	AI Personal Trainer
Project Challenge Area	Artificial Intelligence
School / College / University	Misr Higher Institute For Engineering and Technology
Department/Faculty (for University)	Computer Engineering
Industrial partner (if any)	

B. Advisor Information

Advisor Name	Dr . Sally El Ghamrawy
Title	Head of Communications & Computer Engineering Department - MISR Higher Institute for Engineering & Technology
Work Address	Mansoura City
Mobile	+201224297835
E-mail	sally_elghamrawy@ieee.org
A summary of expertise	Experienced Associate Professor with a demonstrated history of working in faculty of Engineering in the British university in Egypt BUE and MISR higher institution for Engineering. Skilled in c sharp, Eclipse, Java, JavaServer Pages (JSP), and Matlab. Strong education professional with a Doctor of Philosophy (Ph.D.) focused in Computer Engineering from Faculty of Engineering, Mansoura University.

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C. Advisor Information

Advisor Name	Eng. Omar Atef Sesa
Title	Teaching Assistant
Work Address	Mansoura City
Mobile	+2011062548598
E-mail	omarsesa@engmet.edu.eg
A summary of expertise	Data Scientist Machine Learning Engineer Deep Learning Engineer

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D. Project Members Information

#	Full Name	year grade	Strengths (special skills and capabilities)	Mobile number	Email
1	Abdala Gamal Asaad Metwally	3rd	Software Problem Solver - Data Researcher - Video Editor	01018424250	Abdullah41508@engmet.edu.eg
2	Abdelmonem Ali Elmongy	4th	AI & Data Science & Computer Vision	01272919222	abd22066@engmet.edu.eg
3	Abdelrahman Abdelkhalk Ali	2nd	Programming & robotics	01010984875	abd42724@engmet.edu.eg
4					
5					

* Please note that the first name will be referred to as the main **CONTACT PERSON** for the whole group.

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E. Project Description

Applicants shall provide a brief description of their project. This description should include the following:

1. Overview

(i) Problem definition, (ii) approach and tools/techniques, and (iii) overview of system modules.

(i) Problem definition

For the last two years, Covid-19 has been a disaster for our world and categorized as a pandemic, many people stayed home and couldn't keep their healthy lifestyle running like going to the gym, etc. Some athletes couldn't keep their bodies as fit and healthy as before this quarantine.

(ii) Approach and tools/techniques

In this project, we built an Al Trainer program using OpenCV and Python. We used the pose estimation to find the correct points and place them in live video of the user's body then the model draws lines between the points to detect body shape so it can help the model to calculate the angles of every move. By comparing the incoming angles with the desired ones, the model can know if they are fully right or not which helps the program to increase the number of counts.

(iii) Overview of system modules

A Cross-platform system that runes in a web application backed by firebase which deals with an Al python model that responses to every incoming data by analyzing it and sending the results back to the web application.

2. Impact
Why do you consider this project? What is its impact on community/market/end-user/…?
Our project can be used for multiple purposes like a method for the user to communicate with an online hired coach who can give the user a workout plan and diet. We also believe it can be used in the Rehabilitation of our soldiers. We also made our program a self-trainer so the user can input his BMI (Body Mass Index)and receive the best plan based on the inserted data. And also it can check if the user doing the workout set right or not.

3. Novelty and Features
Explain (i) novelty (ii) features, and (iii) related products, if any.
(i) Novelty Unlike some instructions or an app that tells you a workout plan. our project is like your very own personal trainer. It can make a special workout plan for you and track your progress and determine your accuracy in training movement **(ii) Features** Our project will be available for all kinds of people and ages in our community. Not only for athletes. And it's online and easy to use

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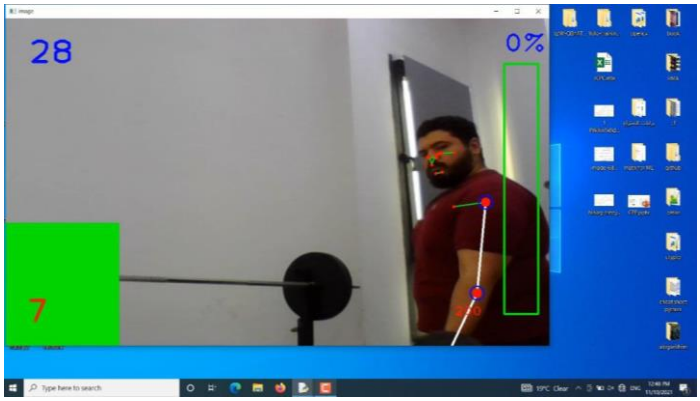
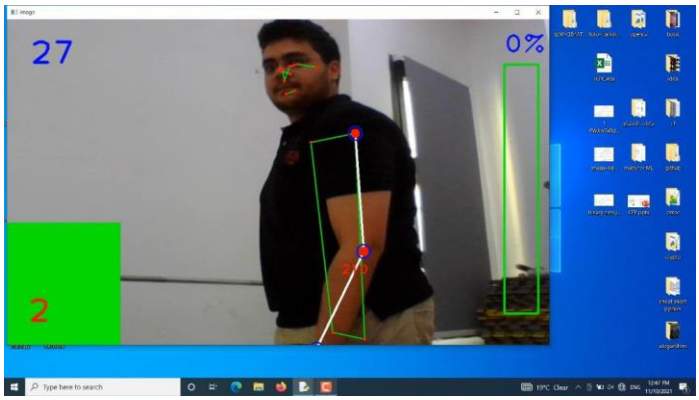
4. Deliverables

What is the project's final outcome (HW device, SW package, simulation ...)? Do you foresee any potential marketing or customers?

Some footage of our project testing





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5. Role of the Industrial Partner (if any)
What is the type of support to be provided by the industrial partner (technical, financial, access…)?

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6. Estimated Expenses

An estimate of the itemized costs: Equipment & tools; printing (up to 10,000 LE)

Item	Type (Hardware/ Software/ Other)	Specifications (brief description)	Justification (why is this item needed?)	Vendor/Source	Unit Cost	No. of Items	Total Cost of Items
1	Python	Programming language	Coding	-	-	-	-
2	NumPy	Library in Python	Convert image into an array of numerical data	-	-	-	-
3	OpenCV	Library in Python	Process and analysis image	-	-	-	-
4	Mediapipe	Library in Python	Help OpenCV library to detect human body and its details using nodes and arcs	-	-	-	-
5							
6							
Total Cost of project							0