Exercise posture correction website
SOT: Simple Online Trainer

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INTRODUCTION

Weight training helps increase our body's muscle mass, which stimulates the metabolism to work continuously even after we stop exercising. The easiest method is to use machines, which help maintain proper form and focus on the correct muscle groups. However, using dumbbells and barbells requires a practice to become skilled. Hiring a trainer takes time and money, and not everyone can afford a trainer. To address these issues, we have utilized technology such as 'Machine Learning'. a branch of Artificial Intelligence [AI], to develop a system that allows AI to recognize proper exercise techniques and further expand to accurately detect correct form through a camera. This system operates through a website known as SOT: Simple Online Trainer.

HOW DOES IT'S WORK?

1.When the camera is opened, AI will detect the body of human in three-dimensional form
2.Create display lines and connect them as joints.
3.Calculate the angle between Upper arm and Lower arm [**Angleonrightelbow**]
4.When **AngleOnRightElbow**<40 **Arm state**:Higher, If **AngleOnRightElbow**>160 **Arm state**:Lower
5.When **Arm state**:Lower change to higher **Counter**: couter+1
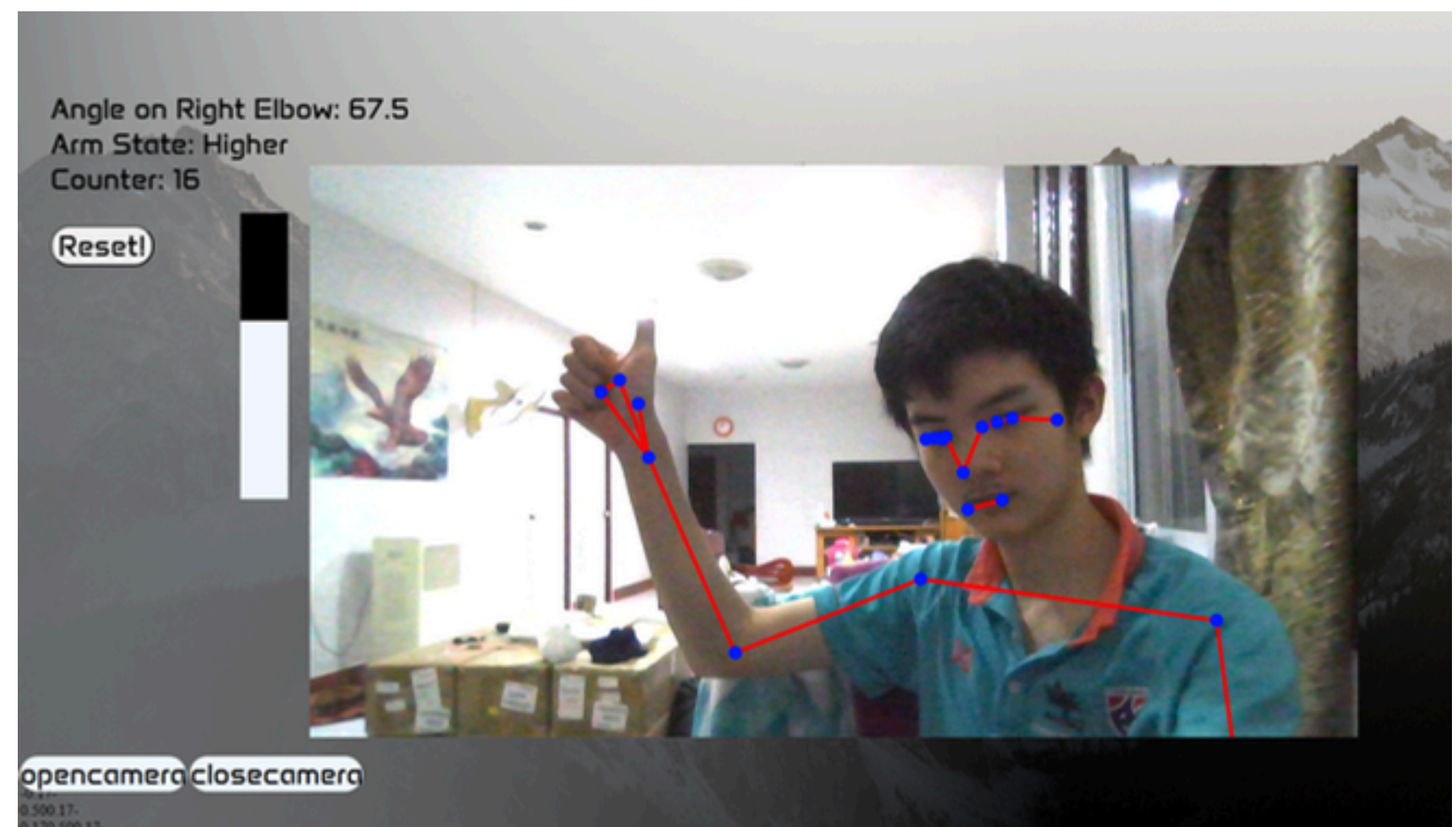
EXPERIMENTAL PROCESS

1. Create the website using HTML by Visual studio code.

2. Develop media pipe ported in HTML code for detect the biceps curl exercise.

3. Coding the calculator angle and counter and test the system.

4. release it online and test the website on other devices and fixes the problem that occured

HOW DOES OUR AI WORKS?
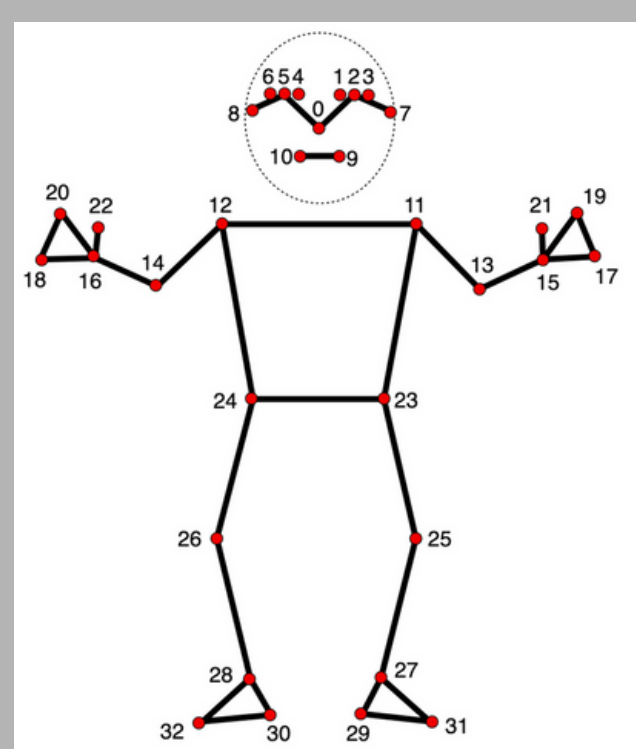
1.Mediapipe will mark all landmark on our body
2.Extract position of each landmark
3.Calculate angle between 3 point of landmark using trigonometry

LANGUAGE USED

HTML   CSS   JAVA SCRIPT

RESULT AND DISCUSSION

The website performance has been test. The AI detection range is from 1-5 meters. The website can accurately calculate the angle when plane of the arm is parallel to the camera, but can not calculate angle regularly when arm is perpendicular to the camera. Arm state change correctly when the angle reach the threshold level.
Counter count correctly when the arm state and angle reach the threshold level. Website display image and landmarks fast and correctly.

CONCLUSION

In conclusion, the Exercise posture correction website was successful in capturing object. The Simple online trainer shows its efficiency performance, making it a new non-human coach for training. Nevertheless, more improvements can be considered to add the other program and expand its capabilities in having various exercises.

Website QR code