Smart Body Posture Recognition and Guiding System

A PROJECT REPORT

Submitted by,

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Under the guidance of,

Ms. Sterlin Minish T N

in partial fulfillment for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING (CYBER SECURITY)

At

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

PRESIDENCY UNIVERSITY

BENGALURU

JANUARY-2025

PRESIDENCY UNIVERSITY

SCHOOL OF COMPUTER SCIENCE ENGINEERING

CERTIFICATE

This is to certify that the Project report **"Smart Body Posture Recognition and Guiding System"** being submitted by **"Sanketh S"**, **"Mohan C V"**, **"Manu K"**, **"Shaun Franklyn"**, **"V Vishwa Kiran Reddy"** bearing roll number's **"20211CCS0124"** , **"20211CCS0133"** , **"20211CCS0140"** , **"20211CCS0158"** , **"20211CCS0190"** in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering (Cyber Security) is a bonafide work carried out under my supervision.

17/01/2025

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DECLARATION

We hereby declare that the work, which is being presented in the project report entitled **Smart Body Posture Recognition and Guiding System** in partial fulfillment for the award of Degree of **Bachelor of Technology** in **Computer Science and Engineering (Cyber Security)**, is a record of our own investigations carried under the guidance of **Mrs. Sterlin Minish T N, Assistant Professor, School of Computer Science Engineering , Presidency University, Bengaluru.**

We have not submitted the matter presented in this report anywhere for the award of any other Degree.

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ABSTRACT

This project aims to develop a Self-Service Wellness Kiosk designed to provide users with an easy-to-use platform for monitoring key health vitals such as Body Mass Index (BMI), Bone Mineral Content (BMC), Blood Pressure (BP), Electrocardiogram (ECG), Pulse, and Temperature. The system includes a unique Posture Analysis Module to ensure the user maintains the correct posture while performing these measurements, which is critical for accurate results. The kiosk employs a camera to capture the user's body position during health assessments and uses Mediapipe, a real-time framework for detecting body landmarks, to guide users in adjusting their posture if necessary.

The proposed solution addresses a critical issue in self-service health monitoring systems, where incorrect posture can lead to inaccurate data. The Mediapipe - based posture detection system calculates angles between specific body landmarks, such as the shoulders and hips, to assess whether the user is correctly aligned. If the posture deviates beyond acceptable thresholds, the system provides real-time guidance, such as repositioning suggestions, to improve measurement accuracy.

The kiosk is designed to be a standalone, user-friendly system that can be deployed in various public settings such as gyms, offices, and healthcare centers, allowing individuals to conduct regular health check-ups without visiting medical professionals. By integrating vital sign monitoring with posture correction, the kiosk ensures reliable, consistent data collection, contributing to better personal health management. The Self-Service Wellness Kiosk serves as an innovative solution for promoting preventive healthcare by making health monitoring more accessible and accurate for users. With its potential to operate in various environments and the ability to scale up with additional features, the project addresses both individual and societal health needs.

ACKNOWLEDGEMENT

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We are greatly indebted to our guide **Ms.Sterlin Minish T N, Assistant Professor** and Reviewer **Mr. Praveen Giridhar Pawaskar, Assistant Professor**, School of Computer Science Engineering & Information Science, Presidency University for her inspirational guidance, and valuable suggestions and for providing us a chance to express our technical capabilities in every respect for the completion of the project work.

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