



Newton School
Coding Club
SRM IST



Gait Evaluation Using AI

TEAM NAME



- ▶ ARPIT KUMAR
- ▶ SUARI DEBBARMA
- ▶ UDAY SINGH SLATHIA
- ▶ FARHAN WAHID



Problem Statement

India faces a critical challenge in its healthcare system due to the disproportionately high doctor-to-patient ratio, particularly in rural areas. This shortage of medical professionals often leads to delayed diagnosis and inadequate monitoring of chronic conditions, including those affecting gait patterns. As a result, there is a pressing need for innovative solutions that can assist healthcare providers in efficiently evaluating and monitoring patients' health



Key Features

User Authentication: Secure login for healthcare providers and patients to access the application, ensuring confidentiality and privacy of patient data.

Gait Analysis Input: Input of gait parameters such as age, gender, stride length, and stride duration for analysis.

Real-time Analysis: Instantaneous analysis of gait patterns using AI algorithms, providing prompt results to healthcare providers.

Patient Communication: Secure messaging feature for communication between healthcare providers and patients, enabling discussions about gait analysis results, treatment plans, and follow-up appointments.

User friendly Interface: intuitive interface that is easy to use for both healthcare providers and patients, facilitating seamless interaction and data exchange.

Proposed Solutions



- ❖ A mobile application designed to facilitate AI-powered gait analysis for remote healthcare monitoring, particularly in regions with limited access to medical professionals such as rural areas of India. The app aims to assist healthcare providers in early detection of neurological disorders by analyzing gait patterns using machine learning algorithms.
- ❖ By employing a Multiclass logistic regression machine learning model to analyze gait patterns, utilizing input parameters like age, gender, stride length, and duration. Trained on labeled data, it distinguishes between hypotonic, normal, hypertonic gait conditions, aiding in early detection of neurological disorders. Real-time predictions trigger alerts for healthcare providers, ensuring timely intervention. Continuous learning and integration with the app's interface optimize accuracy and facilitate remote healthcare monitoring for improved patient care.



Benefits In The Real World

- ❖ This innovative application aims to address all the above challenges by providing doctors, physical therapists, and patients themselves with a robust tool for assessing current conditions, facilitating more accurate and efficient diagnoses, and, most importantly, tracking the progression of patients' conditions and complaints.
- ❖ This application will not only enhance the ability of healthcare professionals to evaluate and diagnose conditions but also empower patients to actively participate in managing their health. By leveraging data analysis and machine learning, this tool will enable healthcare providers to make more informed decisions about patient care, leading to better outcomes

Target Users



- ❖ Doctors
- ❖ Physiotherapists
- ❖ Healthcare providers
- ❖ Patients
- ❖ Rehabilitation centers
- ❖ Government Organizations
- ❖ Rural citizens



Tech Stacks

- ❖ **Python:** For model development, data preprocessing, and backend logic implementation
- ❖ **TensorFlow :** For building and training machine learning models for gait analysis.
- ❖ **Scikit-learn:** For implementing machine learning algorithms and preprocessing data
- ❖ **Flutter:** For implementing the app.
- ❖ **Figma:** For designing the app.