A Project for START-A-THON

START-A-THON

T.I.N.U

Technological Insight for Neurological Upliftment

By-Tarun Binay Das

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INTRODUCTION

Paralyzed individuals and those living with cerebral palsy face unique challenges that significantly impact their daily lives. For paralyzed individuals, mobility and independence becomes the biggest concerns, as they often rely on assistive devices or caregivers for even basic tasks. This condition can hinder their participation in social activities, education, and employment, making accessibility and inclusion crucial aspects to address. The integration of AI and ML holds immense potential to alleviate the challenges faced by paralyzed individuals and those with cerebral palsy. These technologies can personalize rehabilitation, develop smarter assistive devices, enhance diagnostics, and promote accessibility.

This project aims to provide solutions that enhance the quality of life for these individuals. By harnessing the power of AI and ML, this project seeks to promote independence, improve accessibility, and empower the people with disabilities.

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PROBLEM STATEMENT

- According to a report from the Indian Institute of Paralysis, out of every one crore people, 12,000 to 15,000 have Paralysis or upto 2 million people are suffering from paralysis in India alone. And in children the prevalence of cerebral palsy is 3 per ever 1000 kids according to the National Library of Medicine.
- Incidents such as accidents can cause paralysis, and while some patients recover entire movement, others suffer permanent paralysis. Research has found that along with paralysis comes other challenges such as losing bladder control, sexual dysfunction, bedsores, and mental health problems.
- AI, with its ability to swiftly analyze immense volumes of data, enables the creation of predictive models that anticipate the evolving needs of patients with paralysis. Machine Learning algorithms decode patterns within this data, uncovering insights that help medical professionals tailor interventions to specific cases.

THE SOLUTION

The Program would be based on AI and ML and would take inputs of various things such as patient records, medical images (MRI, CT scans), rehabilitation protocols, and clinical studies and with the help of a predefined database and understand the nuances of paralysis, its causes, symptoms, and potential treatments. It also suggests a well defined rehabilitation process for the patient. The program would be integrated into an App where it would have a social section for patients and doctors to interact with each other and to make them more social. The program can also predict any anomaly with the patient and help warn the concerned people.

the program will have an Implemented module that suggests personalized rehabilitation exercises based on the patient's condition, progress, and medical history. This module will adapt over time as the patient's situation changes. we will develop a diagnostic module that takes patient data as input and provides potential diagnoses along with their confidence levels. This module can assist healthcare professionals in making informed decisions. The inputs will be taken from a lot of different sources to make sure that proper inputs are taken into count for an accurate result. we will have Incorporated a feedback mechanism to continuously improve the accuracy and effectiveness of the AI system. As new patient data becomes available, update and retrain the models.

SOLUTION APPROACH

To ensure the project goes smoothly the following approach is being used

Understand their specific needs, challenges, and the tasks they find difficult to perform due to their condition.

UNDERSTANDING

Gather relevant data for training your AI and ML models. This might include medical records, sensor data, user interaction data, and more.

DATA COLLECTION

Using the Gathered Data AI and ML can predict certain health issues and warn us in time.

HEALTH PREDICTION

The Data collected is used to guess what the problem is in the individual and helps to provide some exercise and tasks for improving muscles strength

ADAPTIVE REHABILITATION

AI models should continuously learn and adapt based on user feedback and new data. Implement mechanisms for model updates and improvements over time.

LEARNING AND IMPROVEMENT

Consider the sustainability of the project, including maintenance, updates, scalability and costs

LONG-TERM SUSTAINABILITY

TARGET MARKET

The target group would be mainly from lower middle class to institutions such as hospitals. The Main Market for the sale of the product would be Any person or theri family , Hospitals and rehabilitation centers.

- Many other Medical Professionals such as physicians, nurses, and other healthcare providers who are responsible for the care of paralyzed patients can benefit from such AI predictions. The AI program could provide them with valuable insights into the patient's health trends, potential complications, and necessary interventions.
- Rehabilitation Specialists like Physical therapists, occupational therapists, and other rehabilitation specialists would be interested in an AI program that predicts health outcomes for paralyzed patients. This information could guide the development of personalized rehabilitation plans and monitor progress over time.
- Scientists and researchers in the field of paralysis and spinal cord injuries could use the AI program's predictions to gather data for studies and clinical trials, ultimately contributing to the advancement of medical knowledge in this area.
- Insurance Companies could use the AI program to assess and predict the potential healthcare needs of paralyzed policyholders, helping them design appropriate coverage plans.
- Family members, friends, or professional caregivers who are responsible for the daily care of paralyzed individuals would find the AI program useful. It could assist them in understanding the patient's health status and alert them to any concerning changes that might require immediate attention.

BUSINESS MODEL

- The app would be free for use to anyone.But we can add freemium styled

- With proper consent and privacy measures in place, aggregating and anonymize the data generated by the AI program and sharing it with other companies would help us not only to grow our database but to improve the health industry as a whole. This anonymized data could be sold to research institutions, pharmaceutical companies, or insurance providers to support research and development efforts.

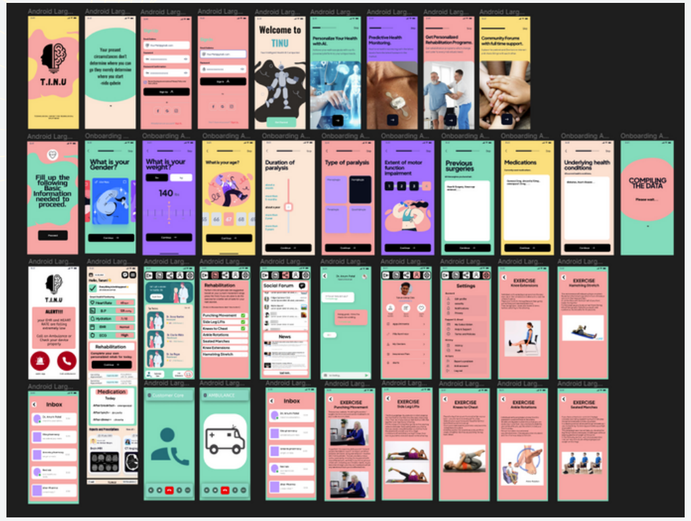
- Partnerships with Medical Device Companies which manufacturers devices commonly used by paralyzed individuals, such as mobility aids or assistive technologies. Integrating the AI program with these devices to enhance their functionality and offer the AI program as a value-added service would help alot in the further development and sharing of the program.

Future Plans

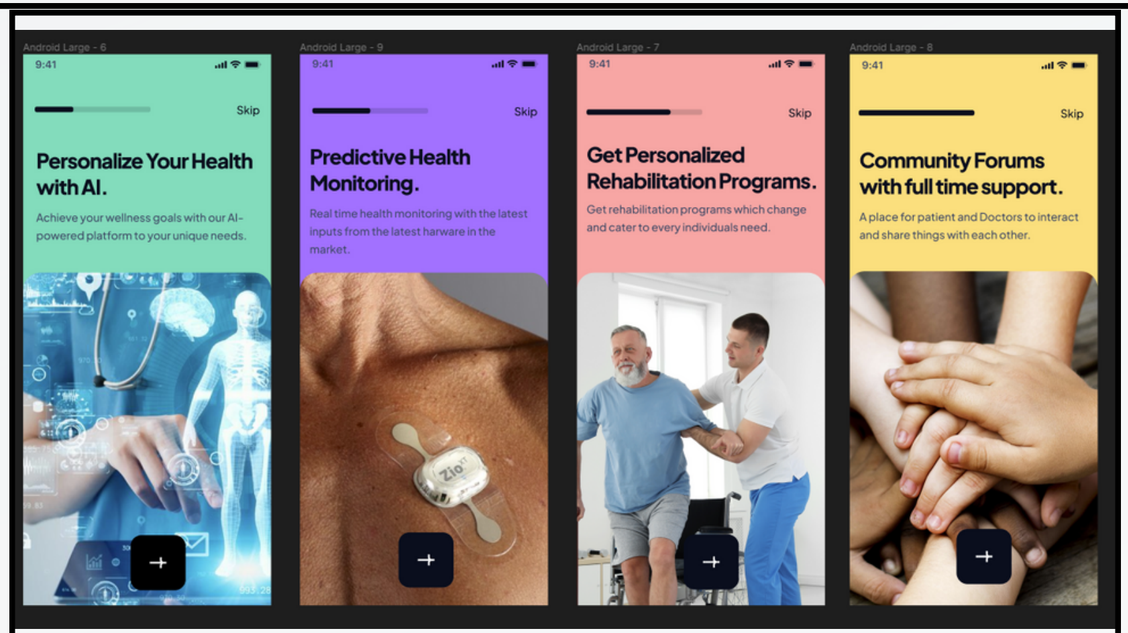
We could improve the software in alot many ways for further helping the people.

- The main plan for the future would be to make the program and the hardware required cheaper and easily accessible to the masses so everyone could use the program to its full extent for their betterment.
- The Software would be regularly Updated with the latest data on dieses based on researchers so they consumers can stay upto date and be ready for any emergency that the program may warn about.
- With the current development in technologies such as Nueralink by Elon Musk we can think of integrating many other things into the software for a further better data collection and to enable us to take inputs from the user in a much efficient way.
- The software would be further improved with many other programs that enable us not only to predict the health conditions and a rehabilitation program but also use the developing biotechnologies to enable the paralyzed people to use technologies using gesture control and other input methods.

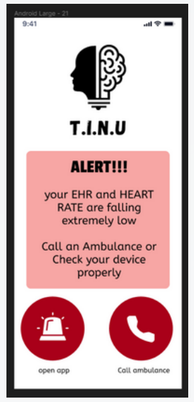
T.I.N.U AN OVERVIEW



Overview of the entire slides

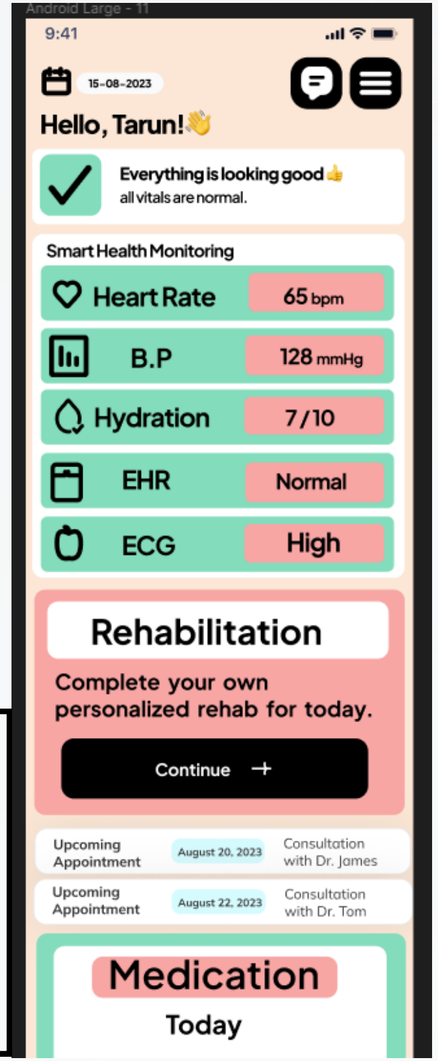


The Main things the app does

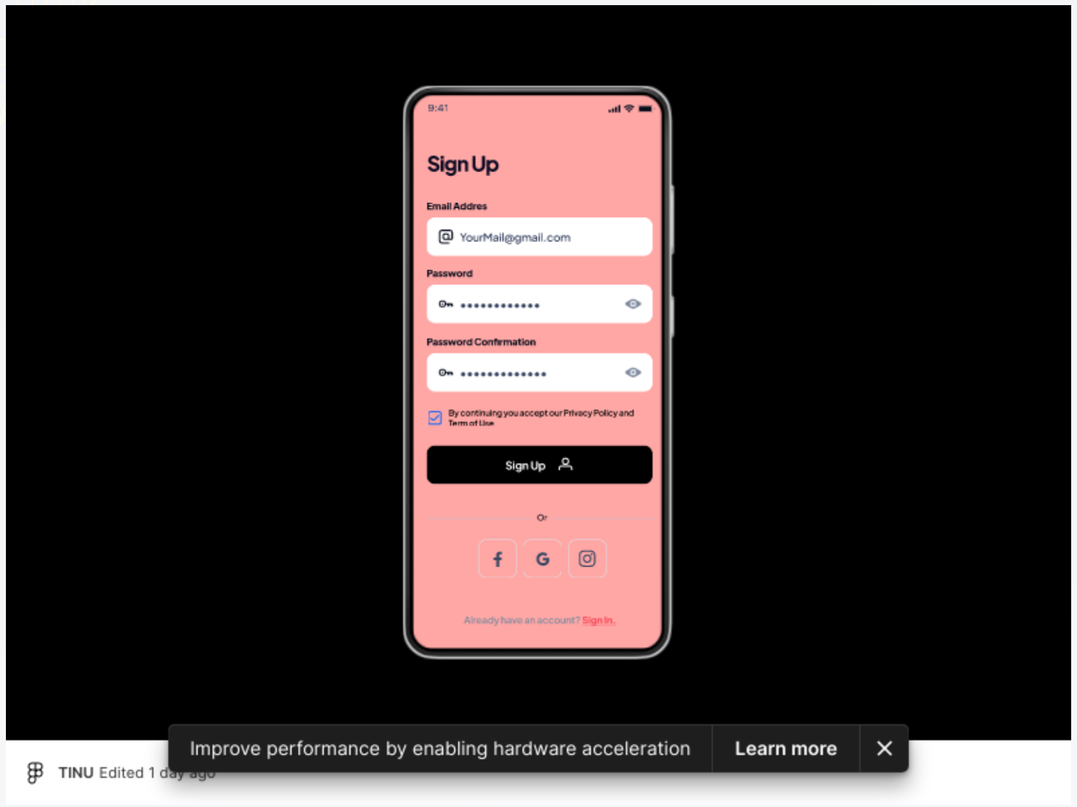


The alert screen that showsup incase of an emergency

The Home page that keeps track of the different aspects of health



Links



https://www.youtube.com/watch?v=IbdISDQqAik&t=2s&ab_channel=TarunBinayDas

The link for my App

The prototype is made in figma

The link for the Video

A video presenting the PPT and the Prototype

THANK YOU

Your present circumstances don't determine where you can go they merely determine where you start
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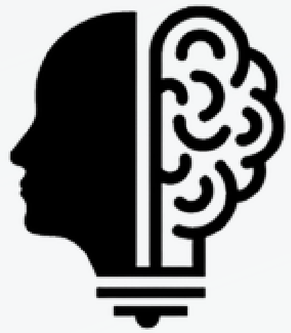

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