ACTIVITY PREDICTION OF THE ELDERLY

Team Members –

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ABSTRACT

We intend to develop a web application for a smart healthcare monitoring system for the elderly living alone in developing countries that employs Artificial Intelligence and Machine Learning techniques such as Decision Tree Classifiers and Logistic Regressors to predict the activity performed by the elderly while in their homes using sensor readings from their smartphones. The web application takes sensor readings from sensors used to track hand and leg movements, as well as body temperature, as inputs and predicts activity based on the sensor coordinates provided. Through this smart application, we hope to provide a long-term measure for monitoring the daily activities for the physical well-being of the elderly.

PROBLEM STATEMENT

Our problem statement focuses on addressing the issue of inadequate care for the elderly as a result of the current generation's poor work-life balance and high workload. We intend to create a smart healthcare monitoring system for the elderly's well-being, particularly in developing countries where people must deal with rapidly evolving technology and a rapidly changing working environment. Through our web application, the activities of the elderly can be predicted from anywhere using sensor inputs from smartphones carried by the elderly, and immediate action can be taken in the event of an emergency or if an unusual pattern in their daily lives is discovered.

OBJECTIVE

The goal of our project is to gather insights based on our study's findings to assess how active a person is based on physical activities performed, which will be used to create hardware or software. The goal is to use a tri-axial accelerometer to detect falls and report such findings to an emergency centre. The project introduces a machine learning-based fall detector as well as a multi-agent architecture for contacting emergency assistance via an input sensor from a web-based monitoring application.

ISSUES IN EXISTING SYSTEM

With recent technological advancements and a highly competitive work environment, the elderly's self-sufficiency has become a source of concern. As a result, ensuring their physical and mental well-being should be our primary focus. Currently, family members and caregivers provide care and guidance to the elderly in most countries, but with increasing workload, there is a need for smarter methods to take on this job. Researchers are focusing on overcoming the aforementioned shortcomings by utilizing smart devices to look after the population's well-being using emerging technologies such as IoT and Artificial Intelligence. Our product uses a similar approach to tackle this problem and aid to the betterment of the elderly.

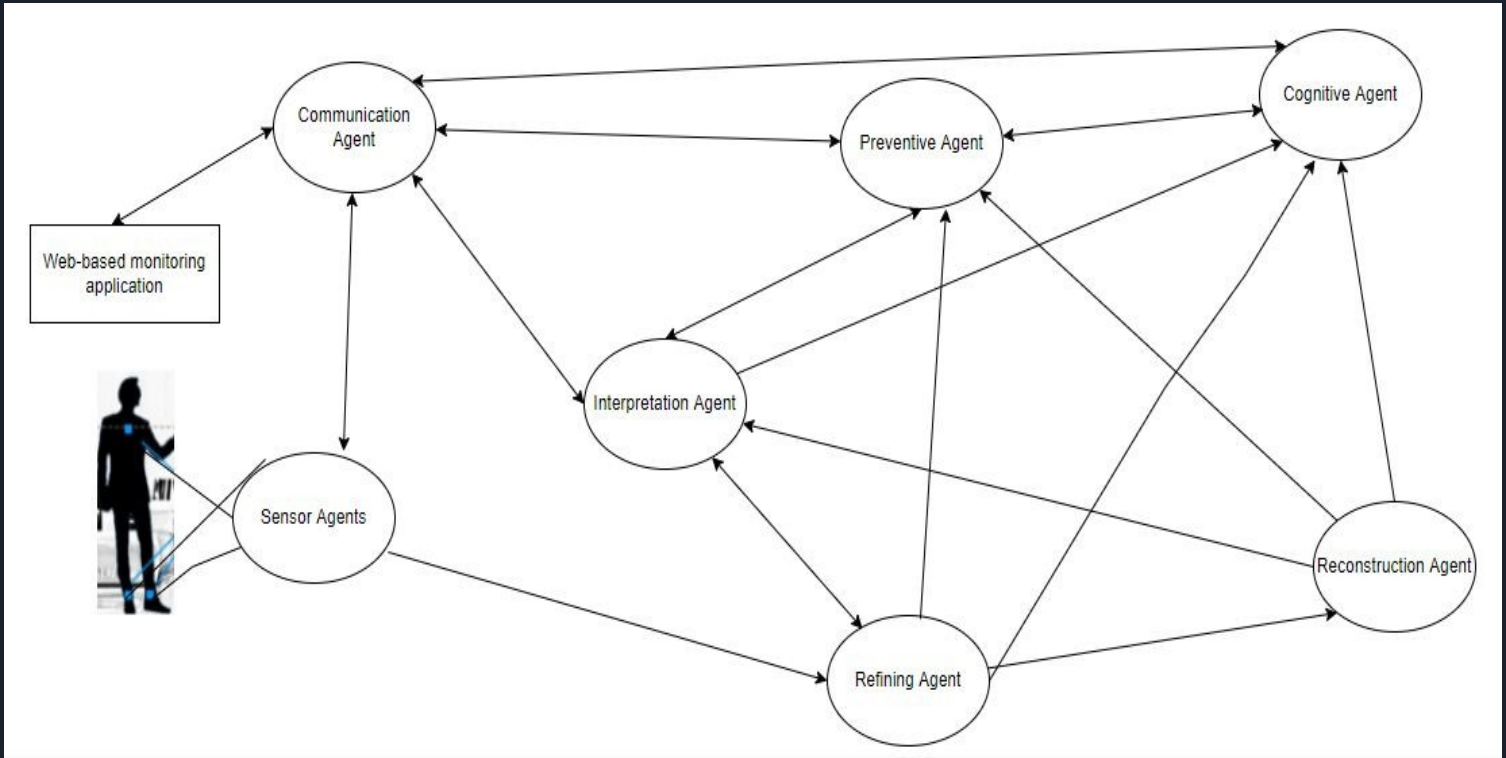
PROPOSED METHODOLOGY

The system requirements are met via a multi-agent architecture. Each system module, job, or activity is meant to function as an agent that provides a service. Agents are grouped into groups at a given level of abstraction and coordinated by another, higher-level agent in the hierarchy.

- The agent architecture reveals the various groups of agents. Agents from one group have the same architecture and perform logically similar functions, e.g., all sensor agents retrieve the data from sensors.

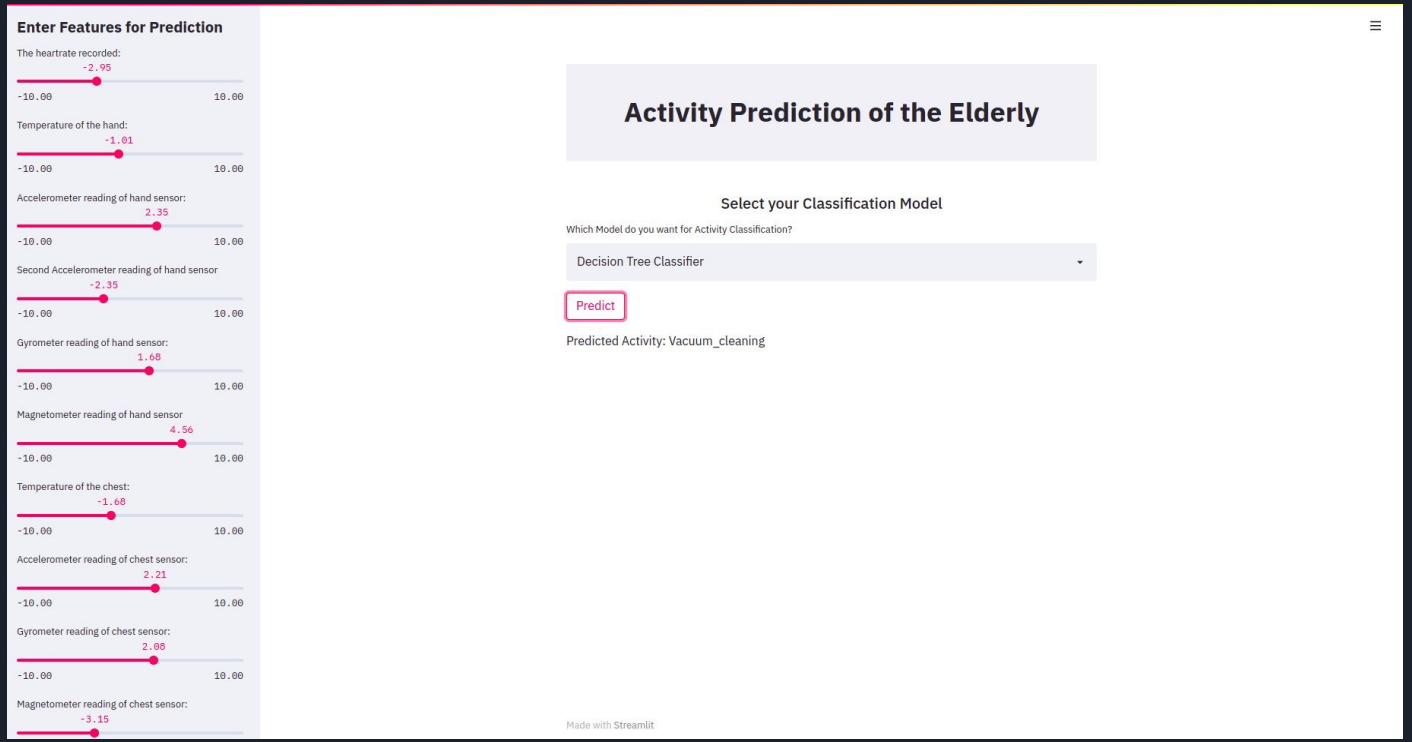
- The arrows indicate the communication between agents. The system is made up of seven groups of agents that provide reliable, robust, and flexible monitoring by sensing the user in the environment, reconstructing the user's position and posture to create physical awareness of the user in the environment, reacting to critical situations, calling for help in an emergency, and issuing warnings if unusual behaviour is detected.

DIAGRAMMATIC REPRESENTATION



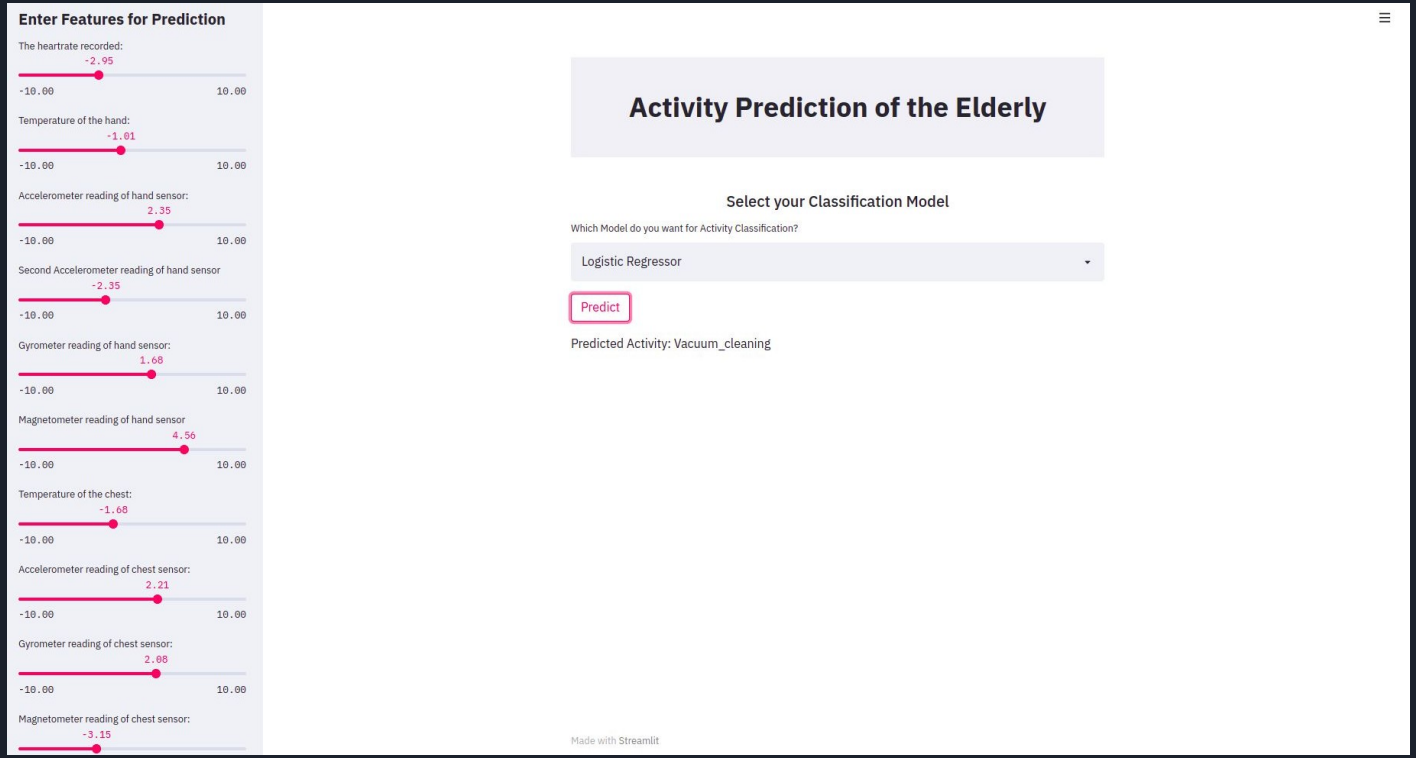
DEMO: PICTURES

DECISION TREE CLASSIFIER

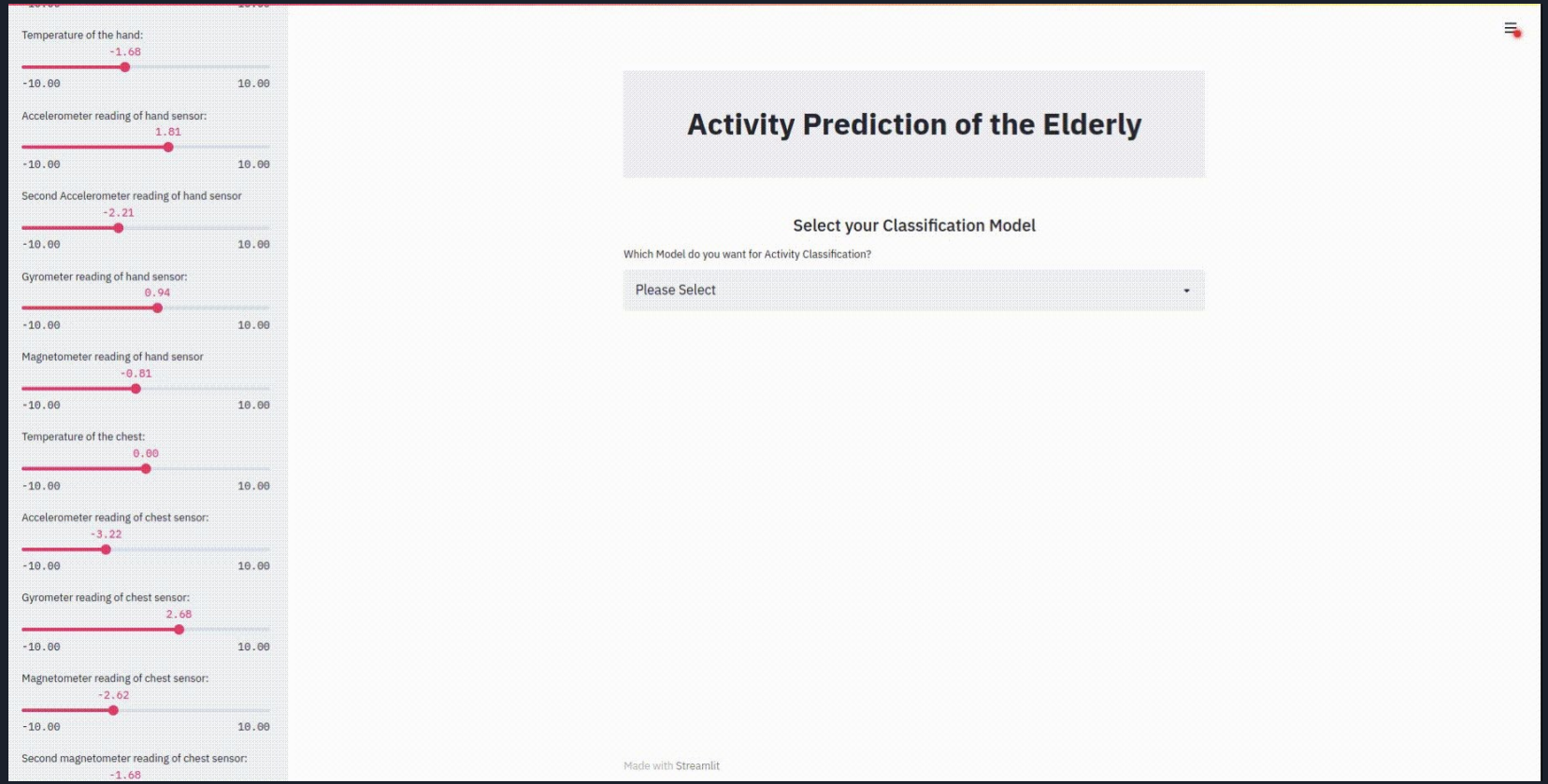


DEMO: PICTURES

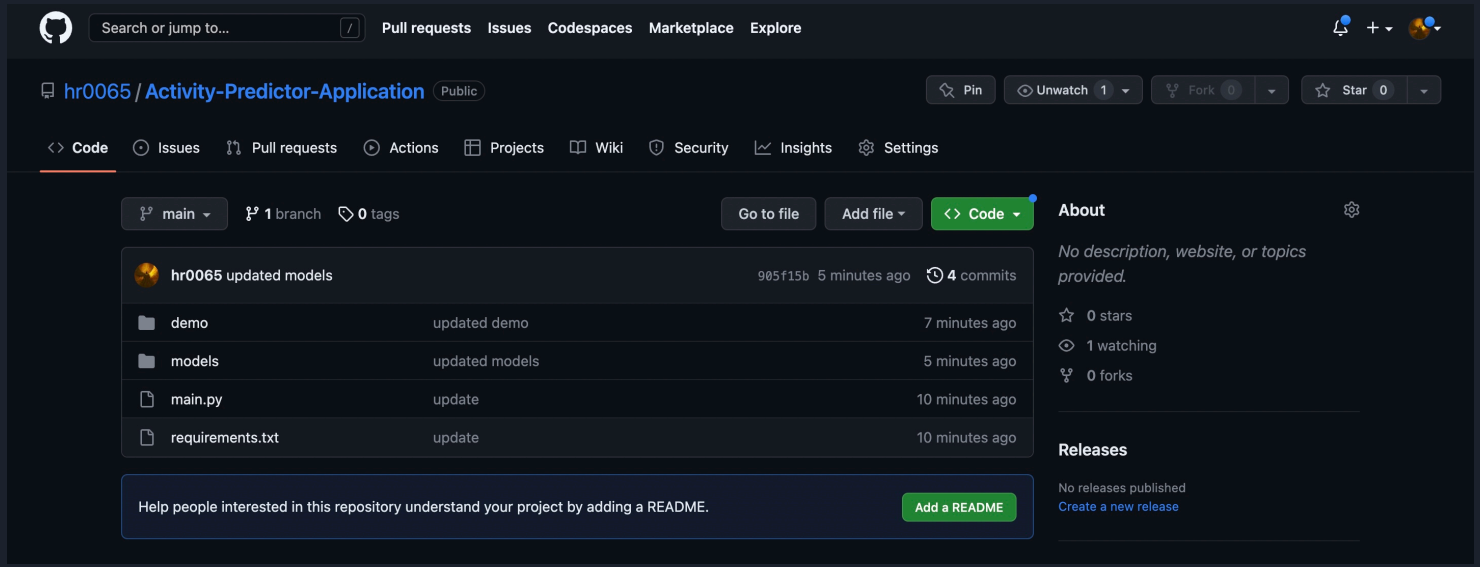
LOGISTIC REGRESSOR



DEMO: Application IN ACTION



GITHUB REPOSITORY



PURPOSE OF PROBLEM STATEMENT

The application is used for monitoring the well-being and healthcare of elderly people who live alone. The purpose of our project is to build something that could be useful to the elderly and one that is easily accessible as well as operable. A major section of the society will benefit from this simple yet effective product since besides the primary target audience, i.e. the elderly people, other people including children, youth and adults can also use it to monitor their well-being and health, since health issue is common to all irrespective of their age. The project is directly related to the health of the people in the society, hence is of utmost impact.

REFERENCES

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THANK YOU