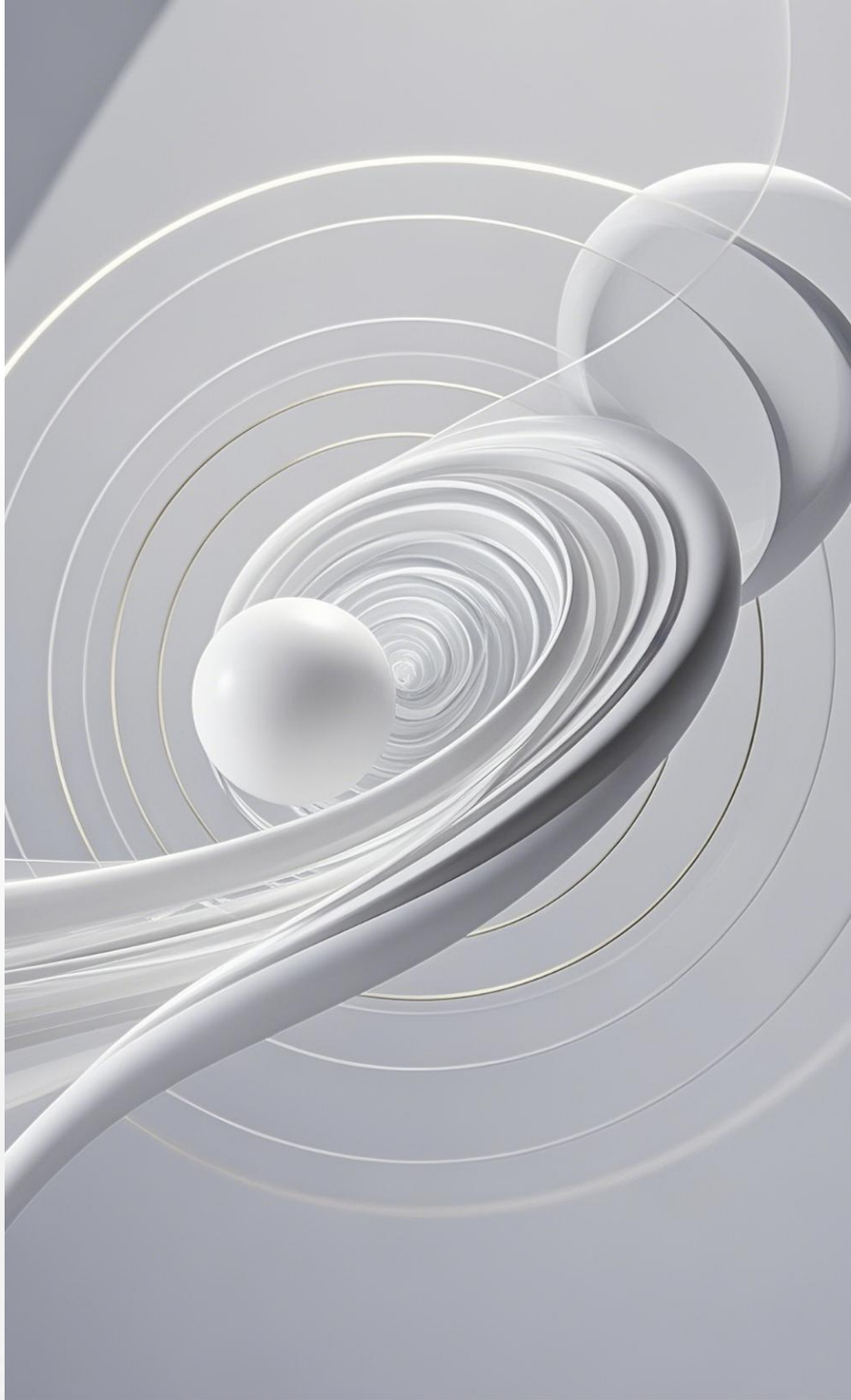
AI-Powered Elderly Care System

The project aims to enhance elderly care with a multi-agent AI system for real-time real-time health monitoring and assistance, addressing the challenges faced by faced by seniors living alone.

Presented by
G. vignesh



Problem Overview

1

Aging Population

Increased caregiving challenges challenges due to elderly rise. rise.

2

Health Monitoring Issues Issues

Seniors struggle to monitor health effectively.

3

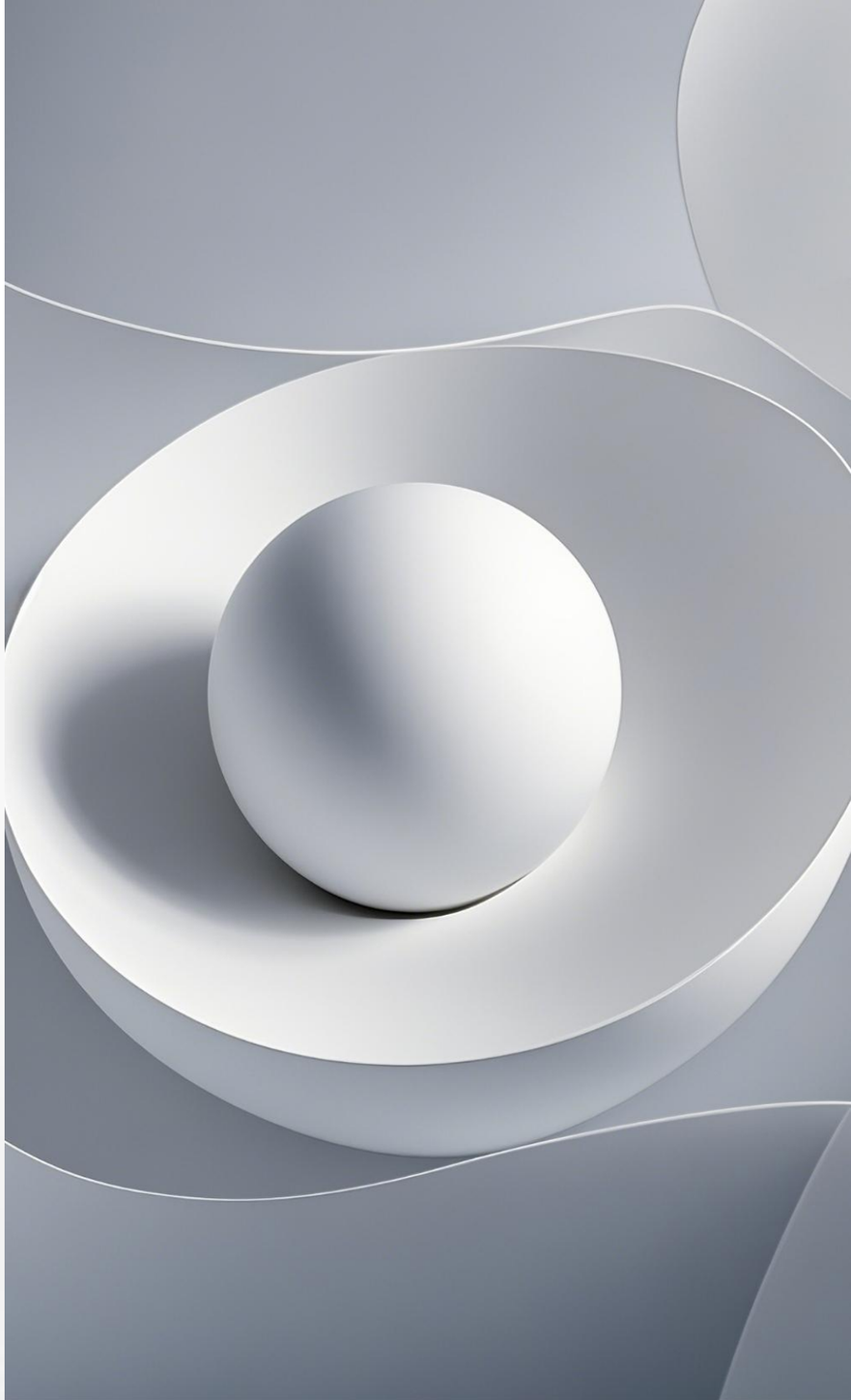
Emergency Response Delays

Traditional solutions often risk seniors' safety.

4

Medication Adherence

Automated reminders needed for forgetful patients.



Proposed Solution

Develop an IoT system using multi-agent AI to monitor seniors' health and assist with daily activities.

Multi-Agent AI System

Develop an IoT system using multi-agent AI.

Wearable Sensors

Utilize devices to track vital health parameters.

Behavioral Anomaly Anomaly Detection Detection

Implement algorithms to detect irregular activities.

Automated Reminders

Create a system for medication and hydration hydration reminders.

Technology Stack

Hardware

ESP8266, Arduino Uno, wearable wearable sensors

Cloud Services

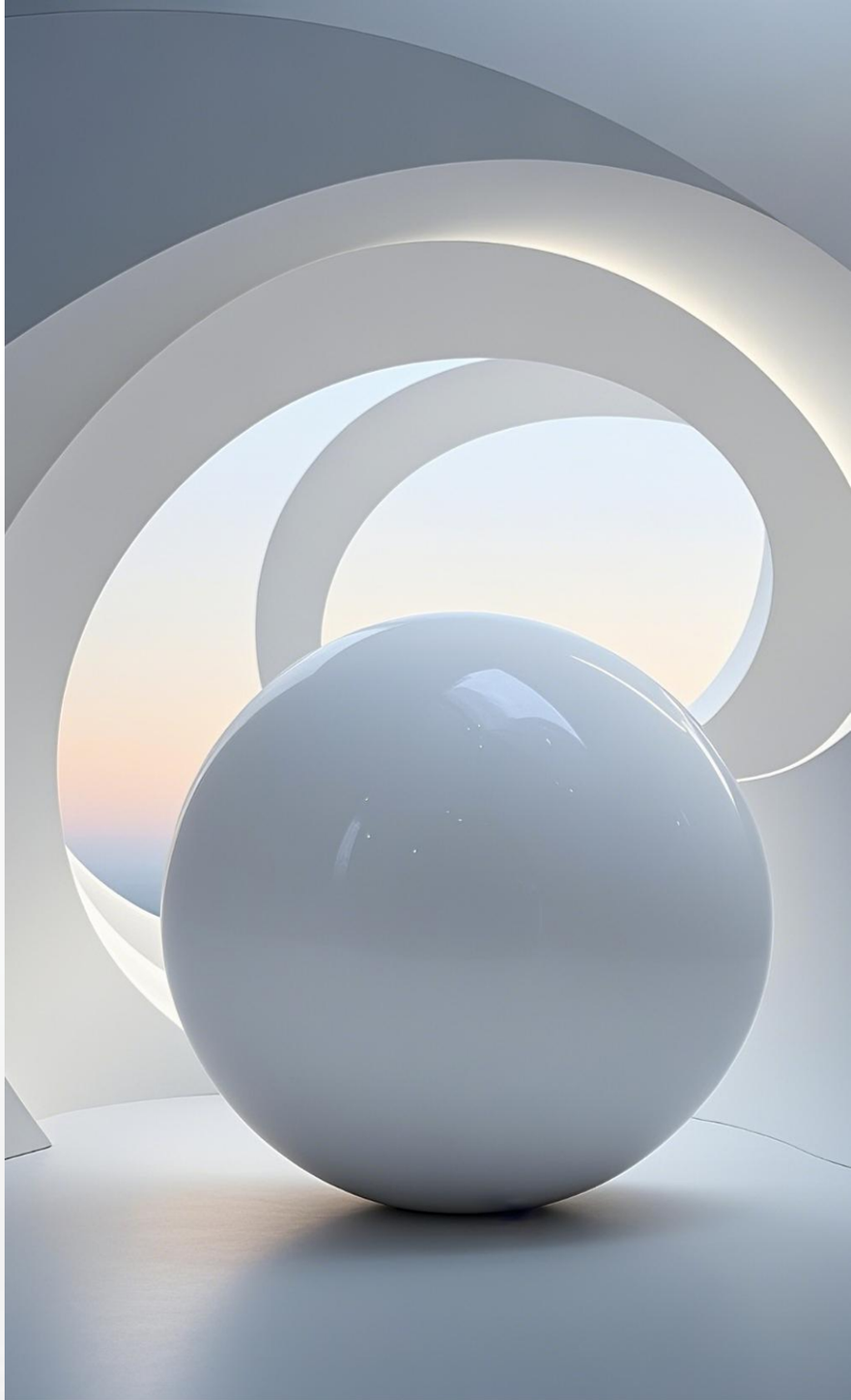
Blynk IoT, Firebase/MQTT

AI Framework

Ollama-based LLMs, SQLite

Machine Learning Models

Anomaly detection for health issues



Multi-Agent System Design

1

Health Monitoring Agent Agent

Collects and processes data from health sensors to track vital signs.

2

Behavior Analysis Agent Agent

Analyzes movement data to detect falls or inactivity, alerting alerting caregivers when necessary.

3

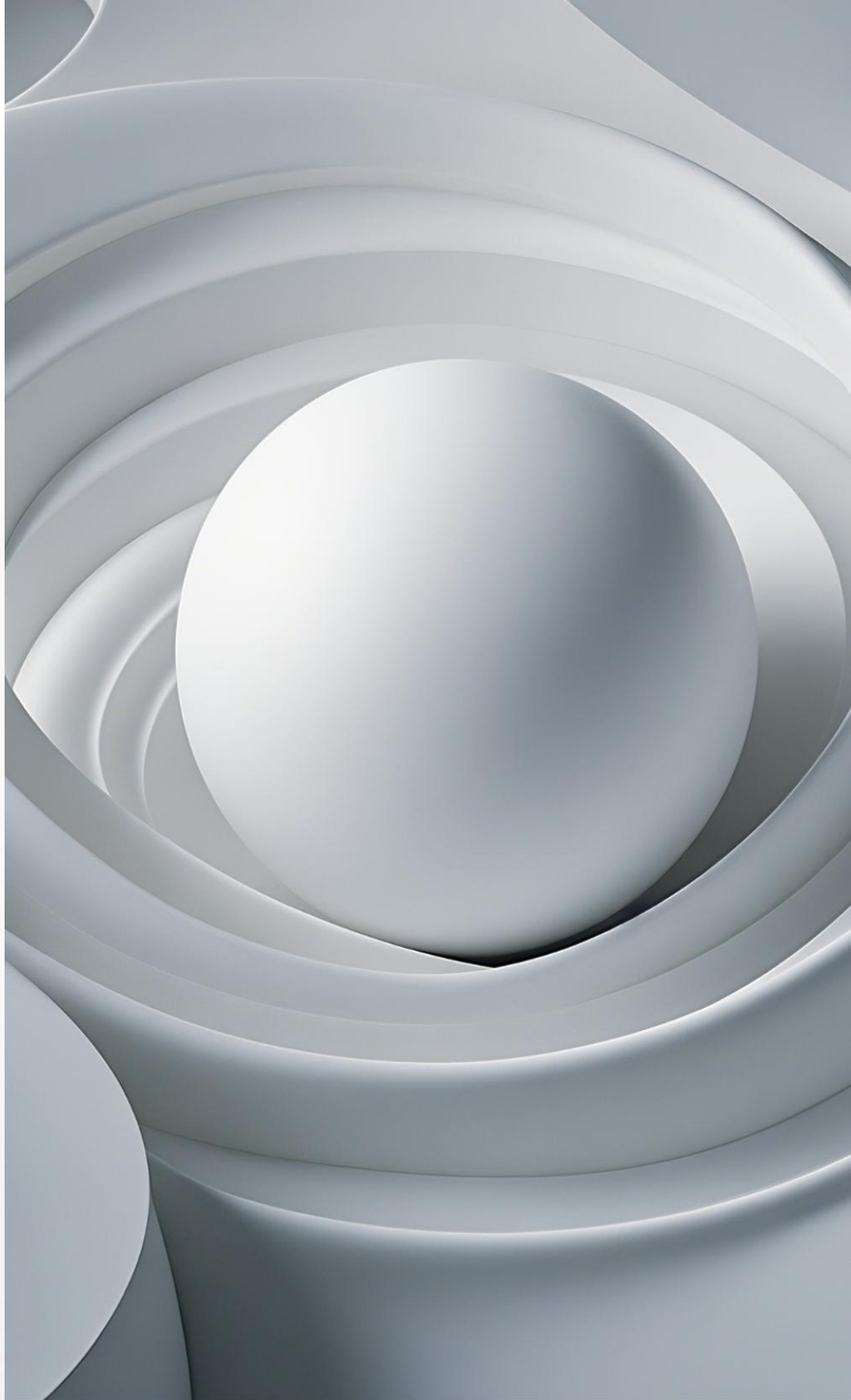
Reminder Agent

Facilitates scheduled reminders for medications and hydration, improving adherence.

4

Emergency Agent

Initiates alerts to caregivers and and emergency contacts during during health emergencies.



Expected Features

Real-Time Monitoring

Continuous health tracking using IoT technology ensures prompt interventions.

Anomaly Detection

Historical behavior data helps in accurately identifying alarming trends or patterns.

Automated Notifications

Sends alerts and reminders through various communication communication channels, channels, increasing engagement.

User-Friendly Dashboard

An optional caregiver interface for visualizing visualizing live data, enhancing accessibility. accessibility.

Hackathon Impact

Significant Improvements

Enhances quality of life for the elderly.

Innovative Technology Blend Blend

Combines IoT, AI, and machine learning.

Scalability

Potential for predictive health analytics.

Feasibility

Strong candidate with existing expertise.

Hardware setups:

- ESP8266 Wi-Fi Module
- Arduino Uno
- DHT11/DHT22 Sensor
- Pulse Sensor
- Accelerometer (MPU6050)
- Buzzer/LED
- Relay Module

ESP8266 & Blynk IoT Integration:

Install Required Libraries in Arduino IDE :

- Blynk
- DHT
- MPU6050
- WIFI Client

Multi-Agent AI System

Agent Name	Function
Health Monitor Agent	Tracks vitals and logs them.
Anomaly Detection Agent	Detects unusual activity (e.g., high/low heart rate, inactivity).
Reminder Agent	Sends reminders for medication.
Emergency Agent	Alerts caregivers if an anomaly is detected.

Dashboard for Caregivers (React + Blynk)

Features offered:

1. Shows real-time vitals.
2. Displays alerts & fall detection.
3. Provides a history of vitals using SQLite.

THANK YOU