PROJECT

SYNOPSIS

OF

Reminisce 360

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OBJECTIVE

The objectives of the system are-

- To reduce caregiver supervision burden.
- Reduced response time in emergencies.
- Increased accuracy and reliability in patient tracking.
- Increased safety efficiency through automation.
- Data security for sensitive medical/location data.

This software package can be readily used by non-technical elderly patients and caregivers, avoiding human-handled chance of error. Two types of users use this project:

i. Patients (Alzheimer's/Dementia sufferers).
ii. Caregivers (Family members).

Patients can use the "Memory Anchor" to identify loved ones and receive audio cues. Caregivers can maintain real-time location tracking and receive instant alerts via WhatsApp. An administrator must be an authorised user to manage API keys and user data.

The application can be upgraded according to users' and administrators' requirements with little changes.

New features can be added as per requirements, such as medical reminders.

MODIFICATION AND IMPROVEMENT OVER THE EXISTING IMPLEMENTATION

Present State of Project:

- No dedicated digital guardian software present for affordable use.

- Time consumed in manually watching the patient to prevent wandering.

- Manual creation of safety perimeters (locking doors, physical barriers).

- Caregivers are informed by neighbours or police manually if a patient is lost.

- The head of the family is more likely to manage the emotional distress of the patient manually.

- More time taken to calm down a terrified patient without understanding the trigger.

After the implementation of the project:

- Easy to use GUI (Camera-first interface).

- Patients can identify relatives instantly; no rush/confusion for recognition.

- Respective caregivers can get informed by the WhatsApp location link automatically.

- List of safe zones (Geofencing) can be monitored on a single click.

- Report of the patient's emotional state (Panic Detection) can be generated easily.

- Burden of Caregiver decreases significantly.

SCOPE OF PROJECT

This project has a large scope as it has the following features which help in making it easy to use, understand and modify it:

- Automation of Patient Monitoring.

- No Need to do Manual Headcounts.

- To save the operational effort by using automated alerts.

- To increase the accuracy and efficiency of the safety procedure.

- Management of Patient Memory/History.

This software package can be readily used by non-programming personal avoiding human-handled chance of error. Two types of users use this project:

i. Patients
ii. Caregivers

Main Points are:

- **Memory Anchor:** Vision API identifies people and speaks names (e.g., "This is Rahul, your son").

- **Safe-Zone (Geofencing):** Screen turns RED and warns patient if >500m from home.

- **Panic Detection:** Auto-alerts family if "Terrified" sentiment is detected.

- **Real-time Information Publishing** through WhatsApp system alerts.

SIGNIFICANCE OF PROJECT

The significance of the project is to provide the following benefits:

- The significance of the project is to automate the safety and memory aid process for the elderly.

- There is no worry of checking the patient's location time to time manually.

- Caregivers get WhatsApp messages for updates related to "Safe-Zone" breaches.

- The system acts as a "Digital Guardian," reducing the need for constant physical presence.

- Empathy-driven technology that aids in "Re-learning" relationships for the patient.

TOOLS AND TECHNOLOGY USED

Tool:

- **Visual Studio Code / PyCharm:** Integrated Development Environments (IDEs) used to write and debug the code, ensuring quality throughout the application lifecycle.

- **Google Cloud Console:** A web-based interface used to manage and monitor the Google APIs (Vision, Maps, Text-to-Speech) utilized in the project. It handles authentication, quotas, and billing for the cloud services.

Technology:

- **Django:** A high-level Python web framework that encourages rapid development and clean, pragmatic design. It is used for the backend logic, handling user authentication and database management.

- **Google Vision API:** A cloud-based tool that allows the application to understand the content of an image. It is used here for Facial Recognition (identifying relatives) and Sentiment Analysis (detecting panic).

- **Google Maps API:** Used to create the Geofencing logic. It calculates the distance between the patient's current GPS location and their home coordinates to trigger safety alerts.

- **Google Text-to-Speech:** Converts written text (e.g., names of relatives) into spoken audio, acting as the voice of the "Digital Guardian."

- **Python:** The core programming language used for the logic, API integration, and server-side scripting.

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