

Script

1. Introduction + Problem Statement (1- 2 min)

Let's start off with a skit

Son/Daughter: Bye dad, im off to work, *exits to the side*

*Old man/woman does their own thing, and accidentally trips and falls onto the floor, struggles hard on the floor and calls out to people *

Old man: Ouch Ouch Help Help, I'm in so much pain, oh no i'm the only one at home ouchhh, passes out...

(Walks forward) Narrator:

Unfortunately, This situation is prevalent in Singapore and worldwide, approximately one-third of individuals aged 65 and above experience at least one fall annually.

According to the Singapore Medical Journal Falls account for 40% of injury-related deaths among the elderly in Singapore. WORST OF ALL, they often go unnoticed, leaving our elders, suffering for hours before being discovered.

This even extends to emergency medical situations that cause collapses - heart attacks, strokes, where time is of the essence.

Every 10-minute delay in stroke treatment results in an average loss of 39 days of disability-free life. During a heart attack, 6 mins delay causes brain damage and 10 mins for it to be irreversible.

Would you want to come home to find your parents lying on the floor? What about your grandparents?

Hence I introduce to you _____ SafeVision

2. Solution Overview

- Intro, technicalities, impact

SafeVision is an AI-powered web application that detects human collapses instantly, allowing early intervention for these medical emergencies

- 1) It uses computer vision to detect human falls in real time via a camera monitoring system. The camera footage is analysed to detect falls.
- 2) Adopts Natural Language Processing to generate question prompts for the person during detected falls and asks them by playing it out on the speaker- "Are you okay"
- 3) It is able to process the persons replies through input microphone and take the necessary actions

There are multiple response scenarios:

- If unresponsive for 30 seconds, emergency services are contacted.
 - If the user requests help - by shouting "help!" , emergency services are also contacted.
 - If the user feedback that they are fine by saying "i am okay", no emergency action is taken.
- 4) The automated response system notifies emergency contacts and services instantly, preventing delays in response time, with all the necessary medical information of the patient, the incident report and even current vital signs like heart rate and SPO2. This helps the emergency services to generate the primary and secondary survey and be better ready to act even before being on site.
 - 5) As mentioned, our solution includes an additional wearable vital sign tracker, such as a fitbit - this allows vital data such as heart rate and skin temperature to be tracked

Now, let's walk through how it works.

3. Live Demo/ pre-recorded vid (2 min)

To demonstrate how the CV works, we

- Demo the fall detection
- Screen record the system's response
- Display the emergency messages via Telegram & SMS (one of our numbers)

*Description of the video

For all these scenarios, a telegram bot using telegram bot API notifies the next-of-kin with a timestamp and an image of the scene at the time of incident. Meanwhile, when emergency services are needed, the bot(?) contacts them via SMS using the SMS API, and key medical information is sent along with it to streamline medical action.

4. Selling point (Business initiative) and answering the hackathon problem statement

Our solution uses AI to integrate smart remote health monitoring into our daily lives to proactively induce early intervention, saving lives, minimising sufferings and drastic medical effects.

SafeVison directly addresses the need for proactive, AI-driven healthcare solutions by providing real-time fall detection, immediate user verification, and rapid emergency response. Traditional healthcare systems are often reactive, relying on delayed reporting or manual intervention, which can be critical in fall-related emergencies, especially for the elderly or individuals with medical conditions.

By leveraging AI and automation, our system bridges the gap between incident detection and emergency response, significantly reducing response time, improving healthcare accessibility, and ensuring timely intervention. This approach aligns with the shift toward preventive healthcare by enabling continuous monitoring, personalized care, and AI-driven decision-making, ultimately enhancing safety, independence, and quality of life for individuals at risk.

Why demand for this solution? It acts as a safety net that ALWAYS protects us. No one can predict these emergencies and no one can prevent human error. Why not invest into a peace of mind, an intelligent model that has your back.

4. Limitations and Future Plans (1 min)

PRIVACY!!! Video streaming in our houses? Who likes that, there's privacy concerns -> future expansions could look into lidar sensors or heat imaging sensors compiled with computer vision on these detected lidar objects or heat imaging instead of direct video streaming. This prevents the identities of individuals from being exposed.

Better accuracy using audio detection, for cases where falls occur in less visible areas, sound if thud is used to gauge the presence of a medical emergency, coupled with information with the wearables that provides vital signs. Multiple languages will also be supported, and if possible, this can be adapted to be integrated into systems such as in hospitals or nursing homes

Reinforcement learning models help to find the likely classifications of the diagnosis or the accidents and give a better incident report. Nevertheless, it could also take into account the type of medical emergencies and tweak its respective NLP prompts and wait times.

6. Conclusion (30 sec)

In conclusion, our project brings proactive, AI-powered fall detection to the forefront of healthcare innovation. By ensuring immediate assistance, we bridge the gap between an emergency and life-saving intervention. Thank you for your time!de

As Singapore ages rapidly, frailty, the reduced function and health in older persons, is set to rise from 5 to 6 per cent now to 27 per cent in 2030. About one in three persons aged 65 years and above, and one in two aged 80 years and older, living in the community will have at least one fall a year. Falls can lead to severe injuries, and any delayed help in this scenario could be life-threatening. Current solutions like wearables can be ineffective if they are not worn or forgotten.

According to the Singapore Medical Journal, 40% of these falls account for injury-related deaths.

With healthcare shifting from reactive treatment to proactive AI-driven prevention, we propose [NAME]..