

Guardian Sense

"Awareness"



The Bill Is too
Costly

Is she
Gonna Be
fine?



Why was I so
Careless



What is the problem?

Falls are one of the leading causes of injury and emergency hospitalization among the elderly, patients with mobility issues, and individuals living alone.

The delay in detecting a fall and notifying caregivers often leads to severe health complications or even fatalities. Existing solutions are either too expensive, lack real-time alerts, or are not easily scalable for home and institutional use.

Fall-related injuries are expensive: hospital visits, emergency care, surgeries (especially hip fractures or head injuries)

Early detection + verification (so false alarms are filtered) means faster help, less time lying alone after a fall – which can reduce complications (hypothermia, dehydration, further injuries).



Why It's Important

- Falls are the second leading cause of unintentional injury deaths worldwide. [World Health Organization](#)
- Each year there are about 37.3 million falls globally that require medical attention.



Most falls happen indoors at home – exactly where Guardian Sense would operate. So the device is addressing the prime location of risk.

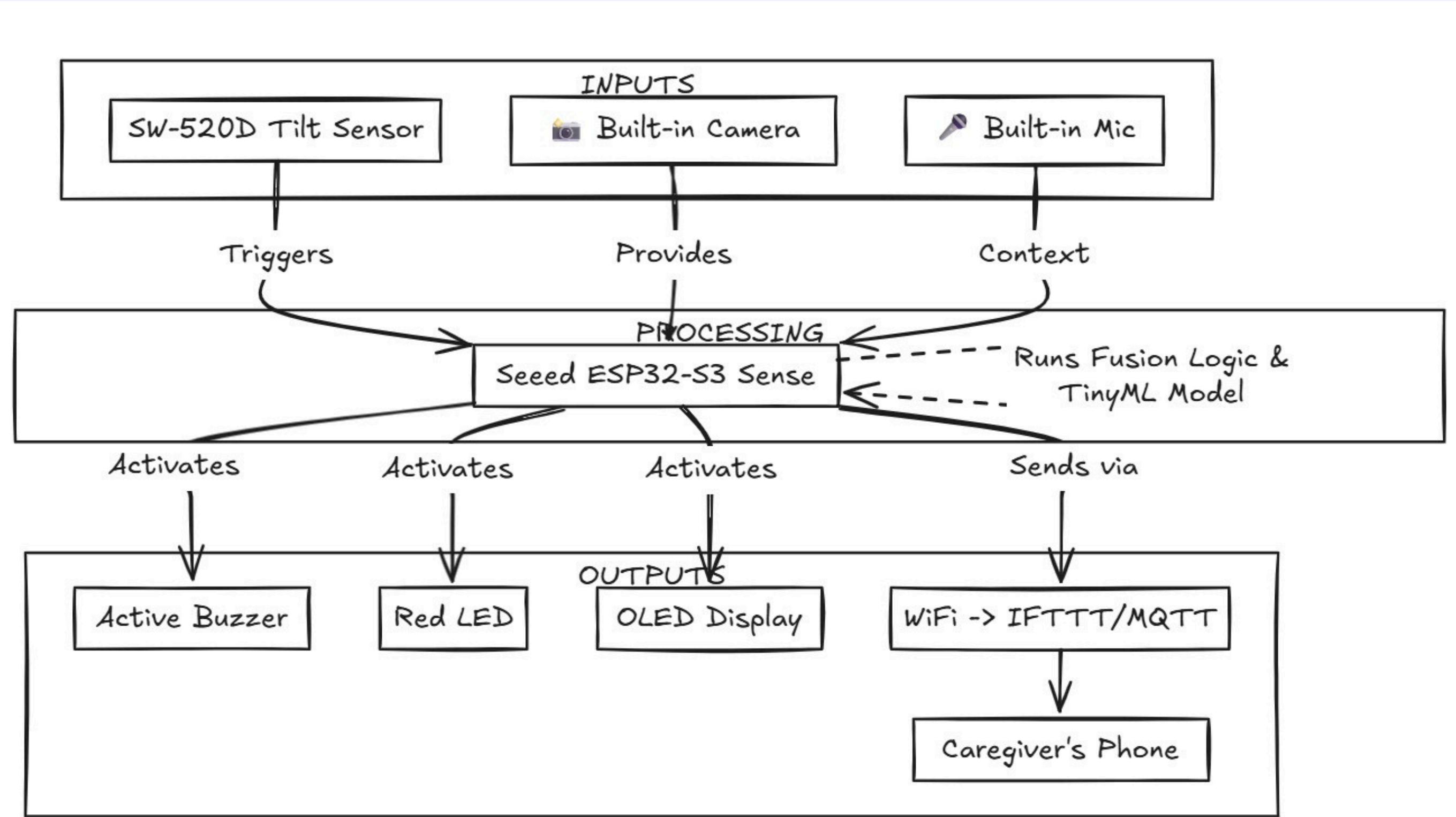


About 71.6% of falls that require emergency room treatment happen indoors, and of those, ~79.2% are at home.

Even when falls don't cause major injury, they often restrict activities afterward, either because of pain, fear of falling again, or because mobility is reduced.

“Because every
elder deserves
a safer
tomorrow.”

How it Works



Tech Stack

Hardware

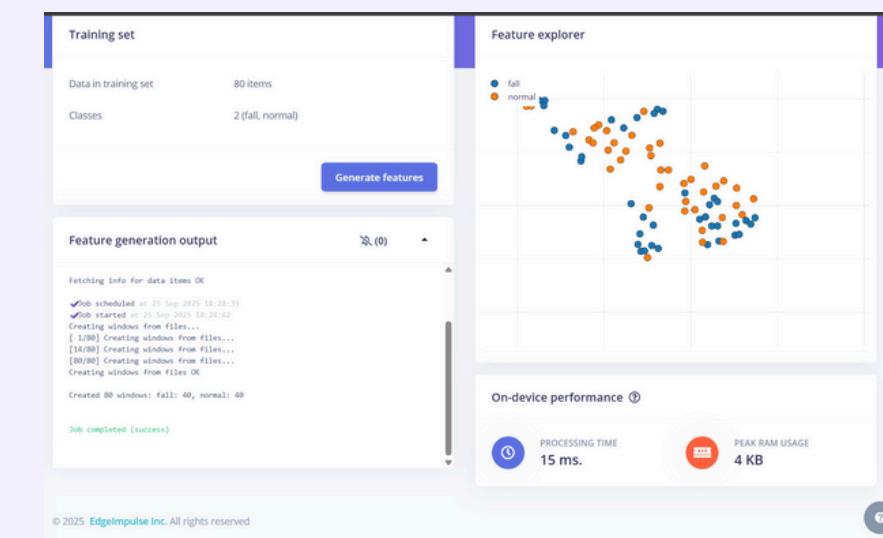
Fact
Xiao ESP32-S3 Sense, RGB LED, LCD1602, sensor.

Communication

Telegram Bot API.



Kaggle Dataset



Classification of Our ML
model In Edge Impulse

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Business Model/Use Case

Target Audience: Elderly care homes, individual households, hospitals, caregivers.



- Monetization:
- Affordable hardware kit (~\$20–30) for households.
 - Subscription for advanced caregiver dashboard & analytics

Scalability: Easily deployable in households, nursing homes, or hospitals.

Real-World Impact: Saves lives by reducing emergency response time and providing peace of mind for families.

Smart Fall Detection Devices

Valued at ~ USD 1.25B–1.41B in 2024; expected to reach USD 4.18B by 2034. CAGR ~ 12–13%.



Target People

Elderly Living Alone

- Seniors who are independent but at high risk of falls.

Care Homes & Nursing Facilities

- Institutions with many elderly residents.

Hospitals & Rehabilitation Centers

- Patients recovering from surgery, stroke, or mobility issues.

Disabled / Mobility-Impaired Individuals

- People with physical disabilities or chronic conditions.

Families & Caregivers

- Immediate notification via Telegram ensures faster action.

Proposed Solution



With a two Step
Verification

“Every fall avoided is a life preserved — because in old age, every moment of safety is a gift of dignity.”

Guardian Sense:

A fall-detection and emergency alert system that instantly notifies caregivers via Telegram and visual indicators.

Key Features & Functionality:

- Real-time fall detection using Xiao ESP32-S3 Sense (IMU + sensors).
- Immediate Telegram bot notification to guardians/caregivers.
- Local alert via RGB light (ambulance-style flashing).
- LCD status display for transparency and easy monitoring.
- Using Custom ML model to verify the Model

Problem Solved:

Provides timely alerts for elderly or patients in case of a fall, reducing response delay and preventing serious injury risks.

Conclusion & Future Scope



Future Improvements:

- GPS integration for outdoor tracking.
- AI-based motion analysis to reduce false positives.
- Wearable or IoT integration with smart home systems.



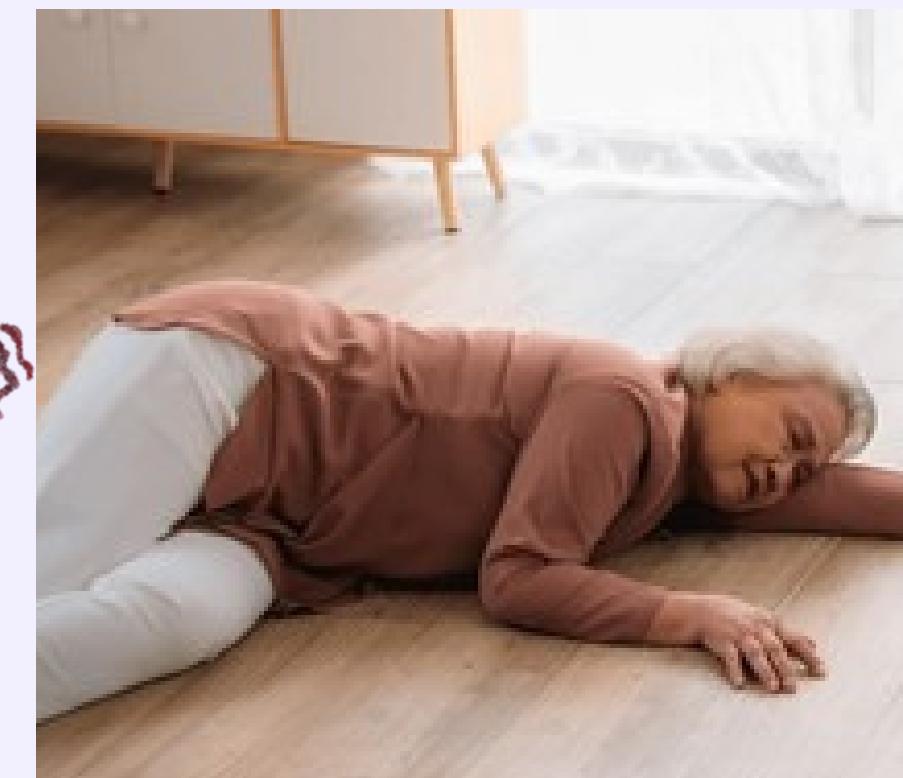
Current Status
(Hackathon Build):
Working prototype with fall detection, Telegram alerts, RGB emergency flashing, and LCD status screen.

👉 Our mission: To change the lives of millions of seniors and caregivers by making safety affordable, accessible, and real-time.

- Globally, 1 in 3 adults over 65 experiences a fall each year.
- That's ~684 million elderly people at risk annually (WHO, UN data).
- In India alone, >25 million elderly face fall-related injuries every year.



With Guardian Sense, even preventing 1 in 10 falls could safeguard tens of millions of lives worldwide, reducing hospitalizations, medical costs, and emotional trauma for families.



Your tension ends here
Guardian Sense watches
over your loved ones.



Safety you can trust, care they can feel

Your peace of mind, your elders' safety in our hands



Buy now

<https://dearabhin.github.io/Guardian-Sense/>