Intelligence Technology - Enabled Health Monitoring and Climate-Adaptive Home Care System for Elderly Societies.



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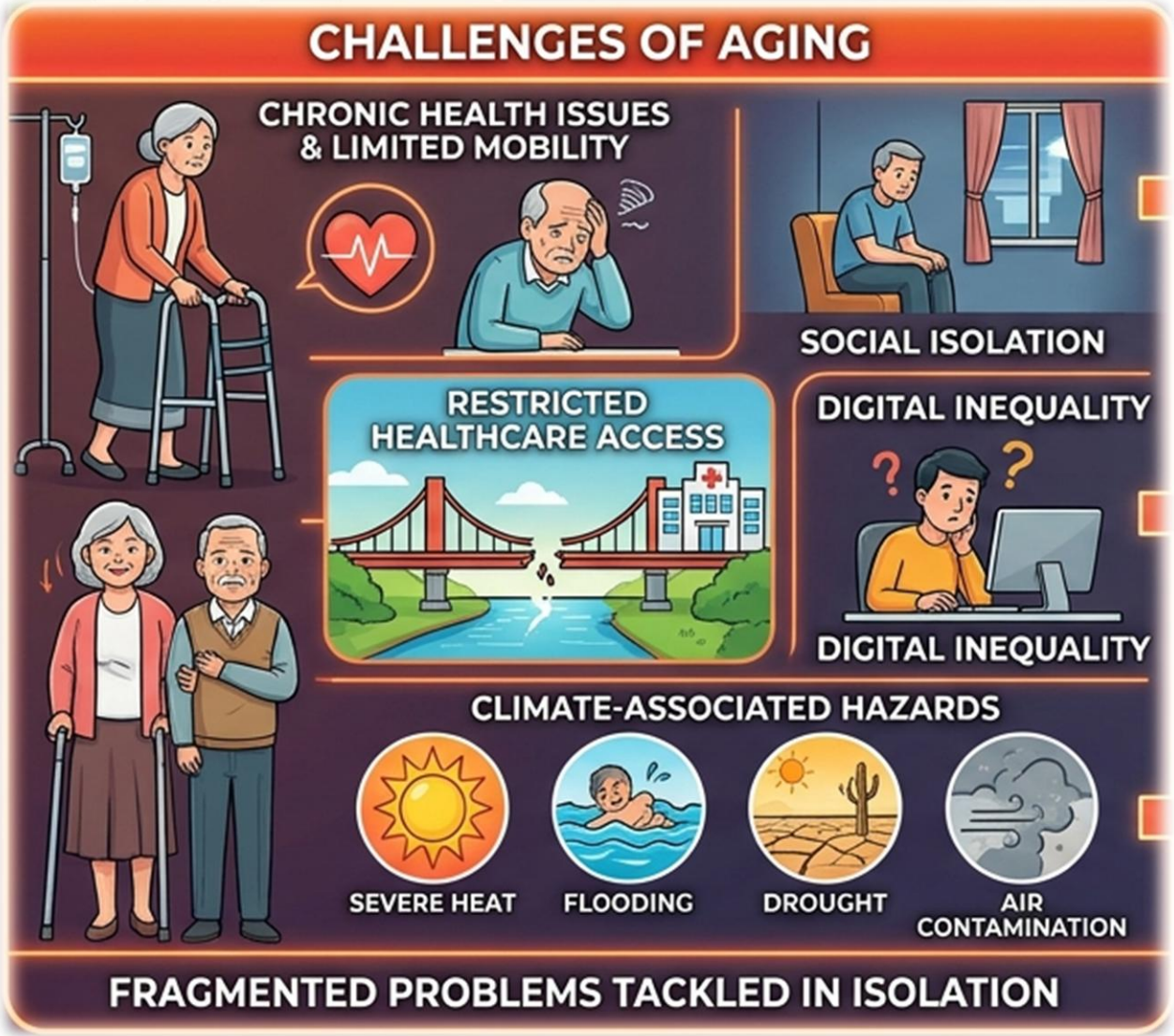
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Background :

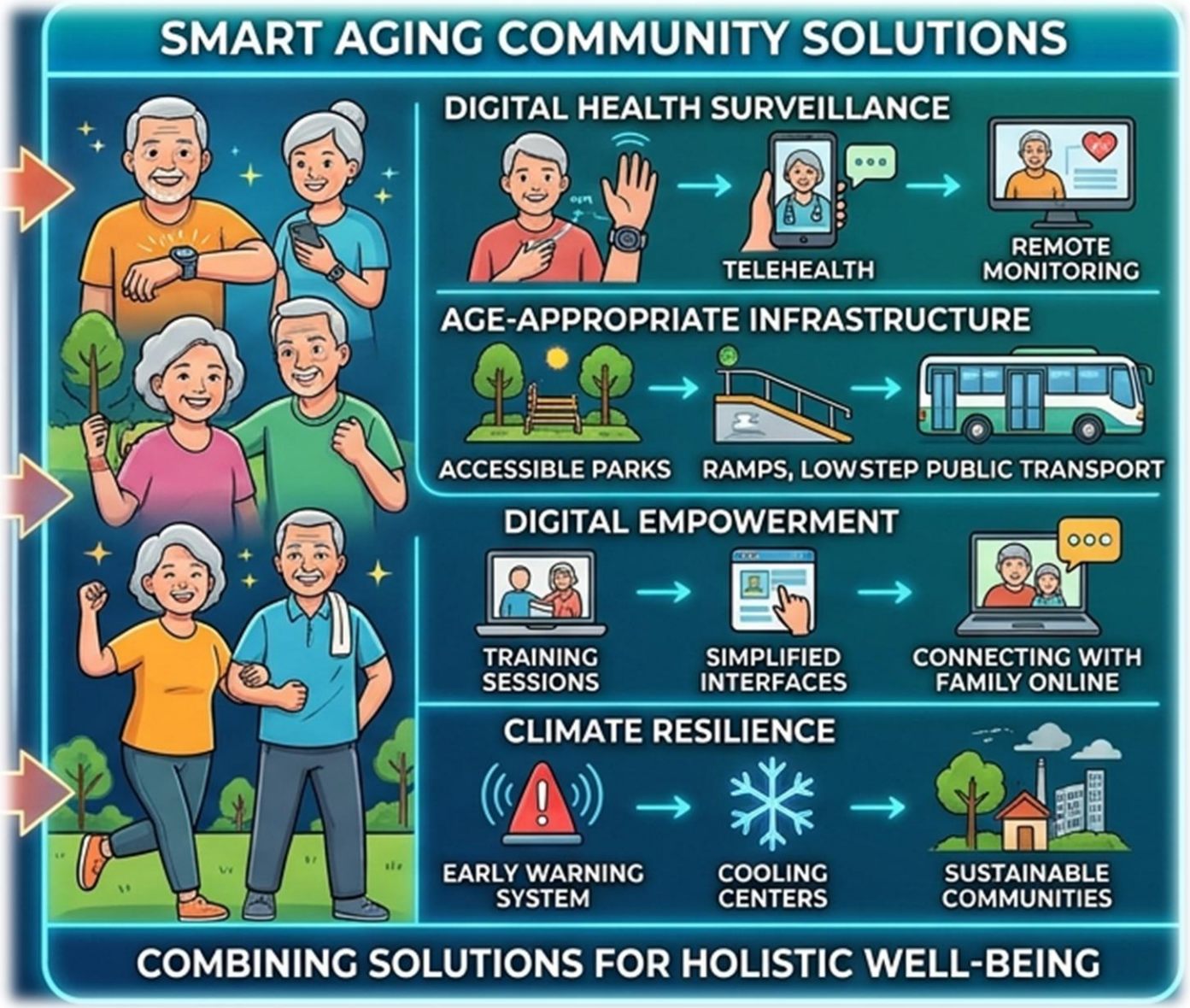
- The aging population is becoming as a significant social, health, technical, and environmental issue in Lao PDR and throughout Asia.
- Elderly people are progressively facing chronic health issues, limited mobility, social isolation, restricted healthcare access, digital inequality, and climate-associated hazards such severe heat, flooding, drought, and air contamination.
- These difficulties are especially critical for elderly people residing independently, in rural or suburban areas, or in homes with restricted access to medical care and digital resources.
- The current Smart Aging Community initiative recognizes the necessity of combining digital health surveillance, age-appropriate infrastructure, climate resilience, and digital empowerment instead of tackling these matters in isolation



By 2030, 1 in 6 people in the world will be aged 60 years or over. - Ageing and health (WHO)

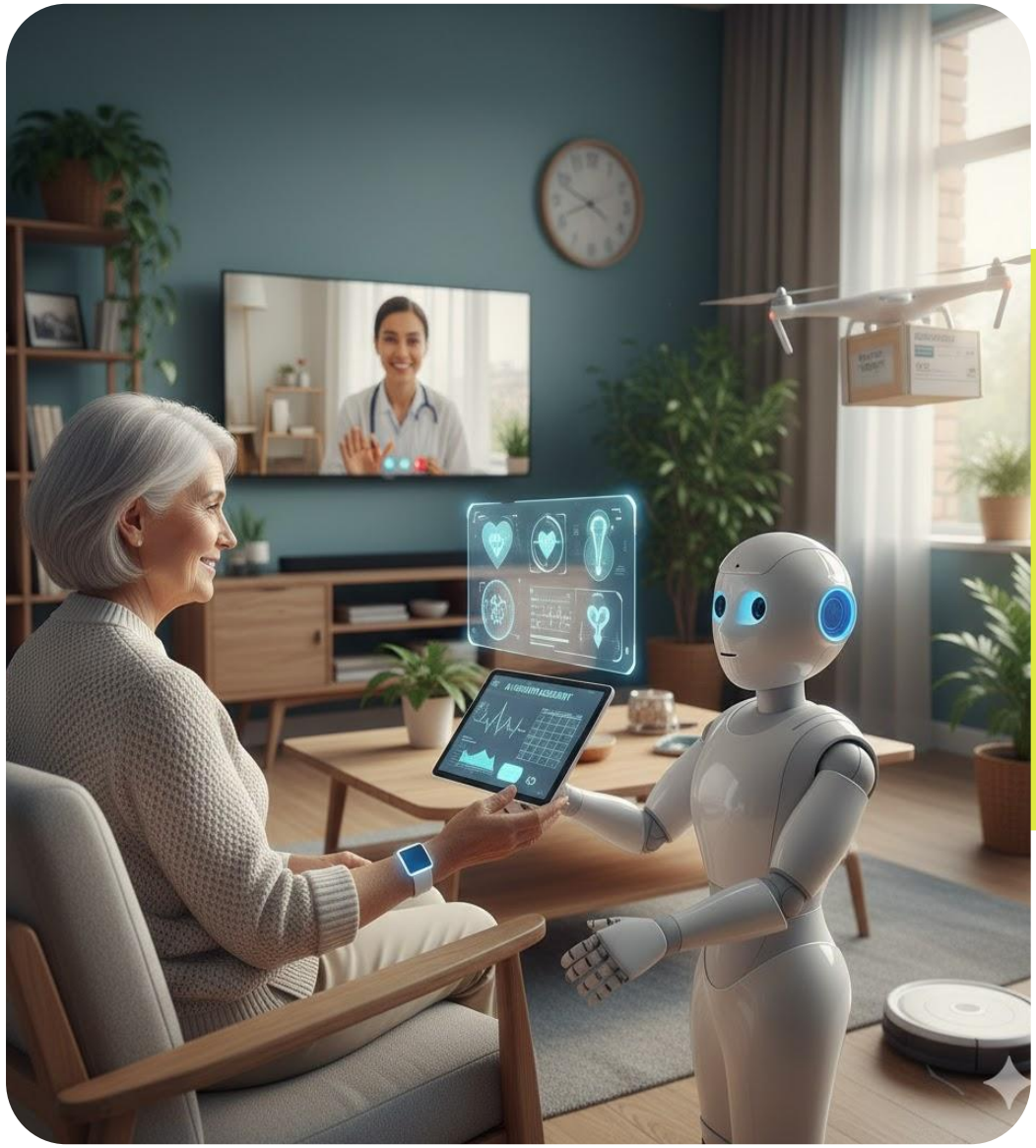
Targets:

- The target of this project is to develop and apply an Intelligence Technology-Enabled Health Monitoring and Climate-Adaptive Home Care System that allows senior citizens to reside more securely, autonomously, healthily, and with respect in their residences and neighbourhoods.
- The proposed approach will integrate Artificial Intelligence (AI), Internet of Things (IoT), wearable sensors, environmental monitoring, mobile applications, remote surveillance, smart notifications, and climate-responsive home technologies into one unified community-focused care model.



Proposed Method:

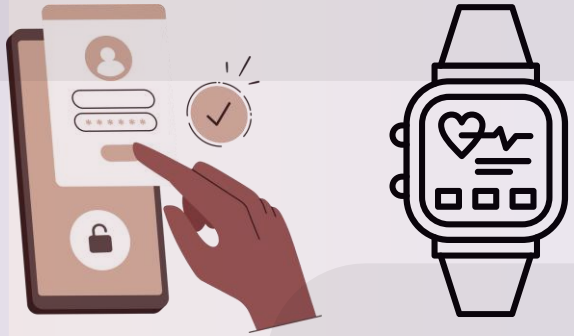
- Develop and implement health monitoring system (AI + IoT)
- Develop and install elder-centered infrastructure.
- Improve elderly people's digital literacy and accessibility
- Works with a helpful mobile application & online health platforms



Proposed Method:

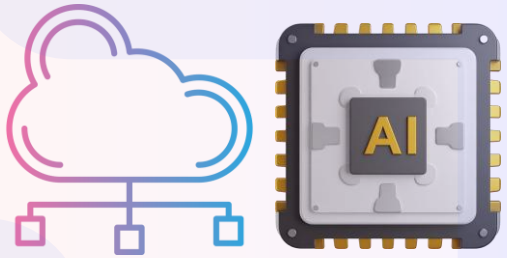


IOT Sensors: Pollutions Sensors
Environment Sensors



Mobile Application & Wearable Device

Real-time Data Monitoring Based on Environment data and Patient Data



Cloud & AI
Data Processing

Data Analytics, Risk Identification, Solution Generation



Healthcare Providers / Caregivers / Family members, Elderly Association

Remote, Timely, Personalized Care

Impact:

Scientific & Tech

Unified AIoT Ecosystem: Converges physiological sensors and climate threat analytics.

Early Warning Engine: Real-time predictive anomaly detection for prompt intervention.

Adaptive Infrastructure: Solar-powered micro-climate sensors integrated with home care.

Key Innovation

Societal Impact

Dignified Autonomy: Enables seniors to age securely in independent home settings.

Digital Inclusion: Bridges tech inequality via simplified UI and youth advocates.

Climate Safety: Protects vulnerable elderly from extreme heatwaves and floods.

Social Equity

Collaborative

Intergenerational Networks: Connects seniors, families, and digital youth advocates.

Institutional Synergies: NUOL research coupled with local healthcare authorities.

Regional ASEAN Sharing: Cross-border exchange of toolsets and directives.

ASEAN Synergies

Policy & Scalability

Replicable Toolset: Provides standardized policy blueprints for rural ASEAN.

Community Ownership: Lowers long-term healthcare expenditure via local capacity.

Scalable Foundation: Expandable to predictive AI telehealth & disaster response.

Long-Term Scale

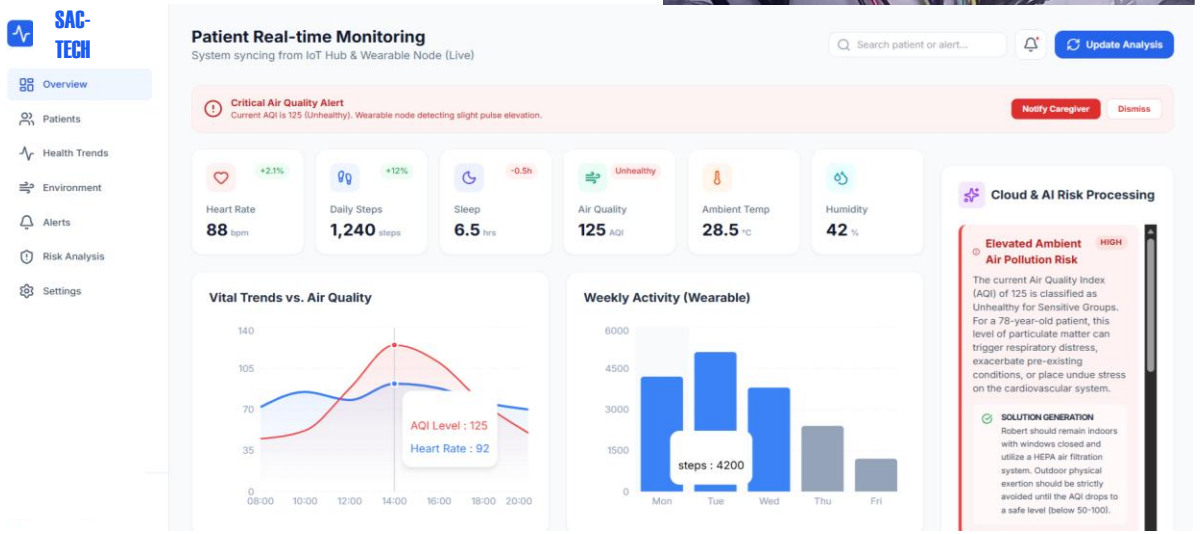
> **Core Value Delivered:** Transforms fragmented elderly care into an integrated, climate-resilient, community-driven digital ecosystem.

Output/Outcome:

- **Integrated AIoT Platform:** Novel platform merging physiological and micro-climate analytics.
- **Smart Alerts Engine:** Early-warning decision-support system for real-time risk mitigation through web-mobile applications
- **Monitor critical health** indicators including temperature, oxygen levels, and pulse rate
- Smarter, **AI-based personalization**
- **Accident/Urgent Incident Warning / Alerts**

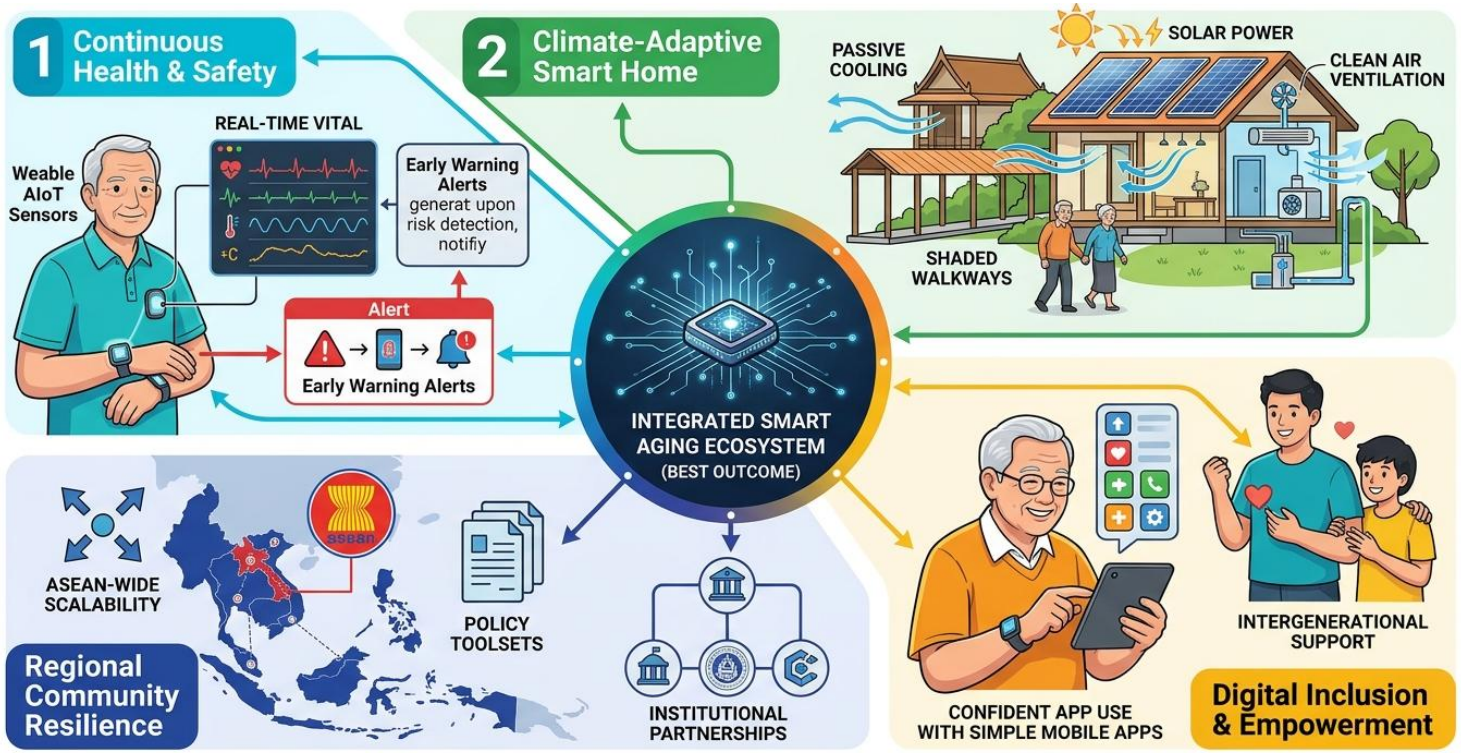






Conclusion:

- The project integrates AIoT health monitoring, climate and environmental sensing, climate-adaptive smart homes, digital health platforms, and digital inclusion into a unified elderly care ecosystem.
- Wearable and home sensors enable continuous health and environmental monitoring, while intelligent analytics support early risk detection and timely alerts.
- Climate-adaptive housing improves safety, comfort, and resilience to environmental hazards.
- The digital platform connects elderly people with caregivers, families, and health professionals, while training and intergenerational support strengthen digital skills and participation.
- Together, these components promote healthy ageing, independent living, accessible home-based care, community resilience, and dignified lives for elderly people.



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