INTELLIGENT PLATFORM FOR SMART HOSPITAL WARD

All-in-one, real time patient vital signs monitoring, and alerting (heart rhythms & respiratory problems, falls and leaving the ward) platform

OVERVIEW

The intelligent platform monitors and analyses a patient's vital signs (such as ECG, respiratory rate, skin temperature and galvanic skin response level) and motion data from a custom-made wireless chest patch. It detects and notify problems via mobile app and dashboard.

ISSUES ADDRESSED

- **Unexpected Cardiac & Respiratory Deterioration, Falls, and Missing:** These are persistent pain points in wards in hospital.
- **Traditional Vital Monitoring Equipment:** Current systems, including telemetry, are bulky and involve numerous cables, limiting the scalability.
- **Lack of Integrated Solutions:** There is a need for simultaneous health monitoring, geofencing and fall detection features to address various observation pain points in wards.

ASTRI's Intelligent Platform for Smart Hospital Ward addressed these pain points through innovations in leveraging AI, IoT and the domain knowledges from our partner, the Tin Shui Wai Hospital. The platform has been deployed to the smart wards in the Tin Shui Wai Hospital as a pilot.

KEYWORDS

Smart Hospital, Smart Care, Smart Hospital Ward, Health and Safety Monitoring, Vital Signs Monitoring, Health Problem Detection, Wearable Devices, Internet of Things (IoT), Artificial Intelligence (AI), Data Analytics (DA)
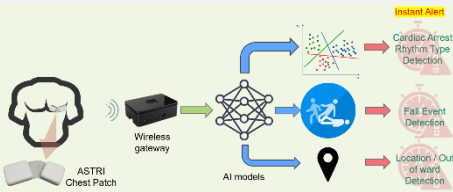
INNOVATIONS

The intelligent platform for smart hospital ward analyses a patient's vital signs and motion data to detect problems such as those in heart rhythms from a wireless wearable. Corresponding alert will be given via app in hospital mobile phones and dashboards. The innovations also include:

- **Reusable chest patch** that collects a patient's real time vital signs (i.e., electrocardiogram (ECG) / respiratory curve, skin temperature and galvanic skin response (GSR) level) and motion data. Then it uploads them to the AI engines in the backend server wirelessly. Its weight is around 59g, and the approximate dimension are 12cm * 7cm * 1.5cm.
- **Hong Kong-specified patient monitoring** platform which integrates:
  - **AI engines** to detect heart rhythms and respiratory problems, fall events and leaving the ward.
  - **Continuous patient status monitoring.**
  - **Alert notification.**

KEY IMPACT

- **Enhanced the safety of patients**
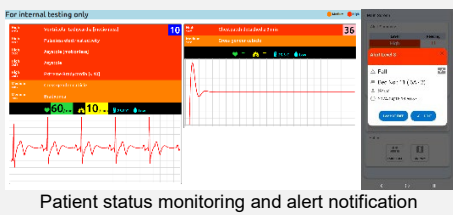- **Improved the efficiency of patient monitoring**

INNOVATION SNAPSHOT

Intelligent Platform for Smart Hospital Ward

Reusable Chest Patch

Patient status monitoring and alert notification

PROJECT COMPLETED

13 Dec 2024

APPLICATIONS

- Smart Health
- Digital Health

PATENT(S)

COMMERCIALISATION OPPORTUNITIES

- IP licensing
- Technology co-development

CONTACT DETAIL

Dr Jackie Liu
Senior Director, Smart City

Email: jackieliu@astri.org
Telephone: (852) 3406 0261