WHAT IS THE FUTURE OF PATIENT CARE?



VISION

Harness technology to monitor patients' vital signs to maximize patient comfort and the quality of healthcare. -√-Vital Sign Alert

The Sydney Morning Herald

His chequered handkerchiefs, blue slacks and white socks blew on a clothes line in the wind in his backyard. The dishes in the sink went unwashed and the days on the calendar he had been crossing off remained untouched.

The 89-year-old died in March and for three weeks, his home became his tomb.

It's a phenomenon called 'lonely death' in Japan, where it is estimated about 30,000 take place annually. And Australians are not immune.

According to the Australian Bureau of Statistics, in 2018 there were more than 158,000 deaths across Australia. Finding out how many of these are unattended is difficult. The National Coronial Information Service can't easily bring up the number of lonely deaths or the time elapsed before they were discovered.

RELATED ARTICLE



So many Japanese people die alone, there's an industry devoted to cleaning up after them

MISSION

On July 4, a 55-year-old man was found in his Traralgon home after dying 15 months earlier. Milk in his fridge dated back to April 2018, leading police to believe he died as early as February that year.

WHO COULD THIS AFFECT?



AGING POPULATIONS 23% (5.9 MIL) OF AUSTRALIANS ABOVE 60

Source: https://www.statista.com/statistics/608088/australia-agedistribution/



PALLIATIVE CARE

AUD 228

IN 2020-2021

PROBLEM

REQUIRED PHYSICAL ROUNDS

Currently, monitoring process requires regular physical rounds by healthcare professionals

INVASIVE DEVICES

Invasive devices attached to the patient's body, and can often lead to interruptions in the patient's rest and comfort

RESTRICTED CAPACITY

It restricts the capacity of healthcare professionals to monitor multiple patients simultaneously, limiting the scalability of patient care in hospitals

LABOR INTENSIVE & INEFFICIENT

Also leads to delayed response time in case of health crisis. It is projected that the nursing workforce in Australia will face a shortage of up to 123 ,000 nurses by 2030.

CONTINUOUS MONITORING

SOLUTIONS REAL-TIME ALERTS

DATA TRENDS

PRODUCT OVERVIEW



PRODUCT OVERVIEW



HOW IT WORKS



PLACE THE MAT UNDER THE MATTRESS

Without having to attach any leads or equipment on patient's body to measure Pulse Rate, Respiratory Rate and Bed Exit Alert.



FIBER OPTIC DETECTS MICRO VIBRATIONS

Breathing and heart beating causing small vibrations that are picked up by our fibre optics.



VIBRATIONS ARE PROCESSED TO DATA

The signals are processed and converted into data for monitoring.

PRODUCT BENEFIT



FOR ADMINISTRATION

• Reduces data entry



FOR CAREGIVERS

- Reduce time to manually check on patient constantly
- Receive alerts if emergency arises for quick response



FOR PATIENTS

- Increase comfort
- Improve quality of care



• Historical data can assist diagnosis

COMPETITIVE ADVANTAGE

ACCURACY + SPEED

OPTIC FIBER VS COPPER







-√-Vital Sign Alert

PRICING AND DELIVERY





PER UNIT INCLUDING SCREEN





4

WEEKS ANYWHERE IN THE WORLD



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VITAL SIGN ALERT

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US 2010198899 A1,2010.08.05 US 2003163032 A1,2003.08.28 Aydin Kizilkaya.ARMA model parameter estimation based on the equivalent MA approach.《Digital Signal Processing》 .2006,第16卷(第6期),第670-681页.

Md Sahidullah.A Novel Windowing Technique for Efficient Computation of MFCC for Speaker Recognition.《IEEE Signal Processing Letters》.《IEEE SIGNAL PROCESSING LETTERS》,2013,第20卷(第2期), 149-152.

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THE FUTURE OF PATIENTS' CARE



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UPCOMING EVENTS

- CLINICAL TRIAL VALIDATION OF VITAL CARE SENSOR MAT WITH MEDICAL DEVICES AT UNIVERSITY SINGAPORE INSTITUTE OF TECHNOLOGY.
- SINGAPORE SENG KANG HOSPITAL PROJECT FOR VITAL SIGN CONTACTLESS MONITORING
- ATTEND DIGITAL HEALTH FESTIVAL AT MELBOURNE AUSTRALIA 6TH 7TH JUNE 2023
- PARTICIPATE MEDICAL FAIR THAILAND EXHIBITION 13TH 15TH SEPTEMBER 2023
- PARTICIPATE MEDICAL JAPAN TOKYO EXHIBITION 11TH 13TH OCTOBER 2023







ROADMAP





First RCA with 2013 A-Star Singapore

Masstron start the first Research and Collaboration with A-Star for FBG fiber sensor for vital signs detection.



2016 **Deployment at Nursing** Home (Link Kwang)

Further trial and deployment at Nursing Home for elderly care applications.



Smart Mat Version I 2018

Through self R&D and testing new technology using Fiber Light Variation, we start development of new sensor and wireless module with IOT applications.

