Inspiration

Elderly Fall Detection

Tan Chee Wei A0179723U
Lim Kim Chwee A0178196M

Background

The ageing market sector in the Asia-Pacific is projected to reach US$3.3 trillion by 2020, making it a potential sunrise industry

Internet of Things and data analytics can be use to create innovative eldercare solutions.

This aligns with the government's drive to encourage the elderly, to age in place and maintain their independence for as long as possible

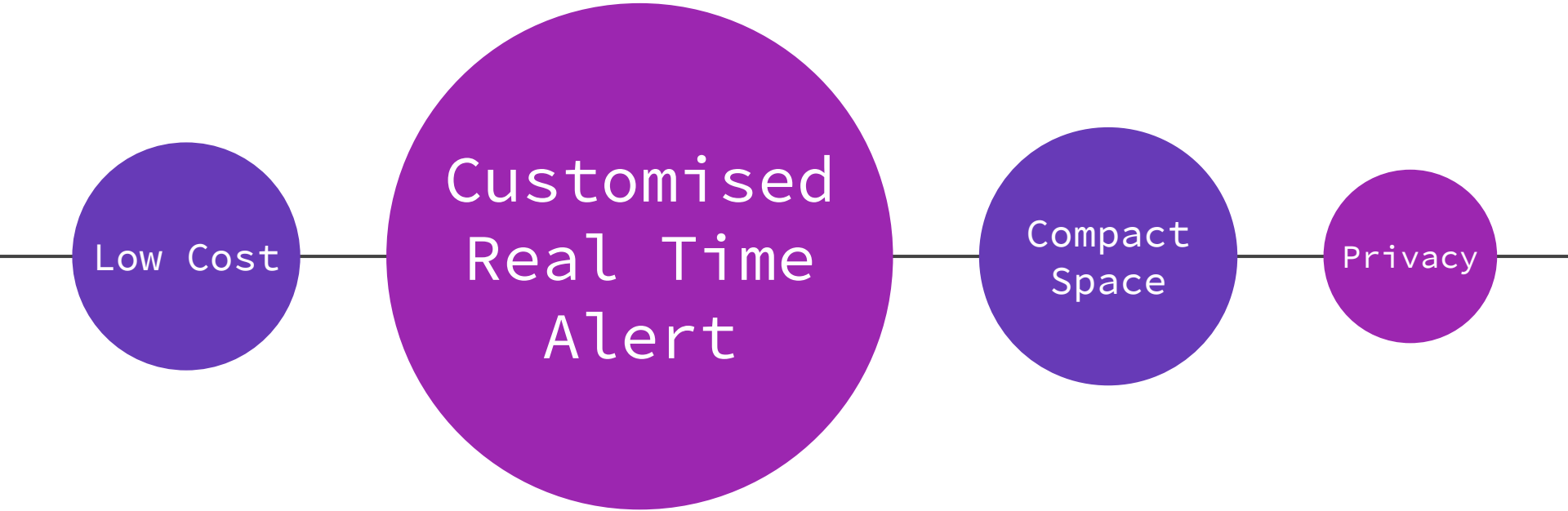
International studies show that one in three people above the age of 65 will fall at least once each year.

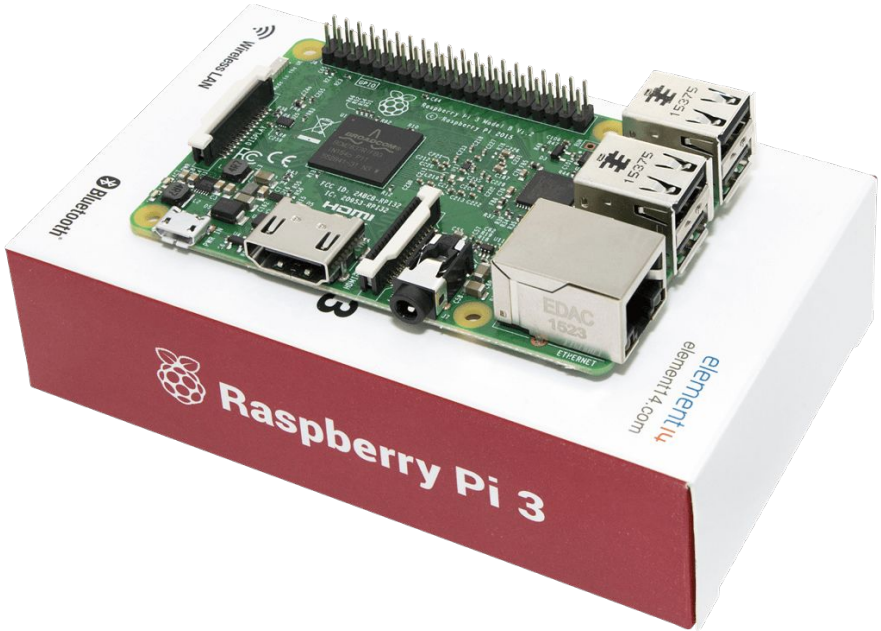
An older person's bones are more brittle and his healing process is slower, so a single bad fall can leave him struggling to move for the rest of his life.

And for those living alone, it could be hours or even days before they get help after a fall.

What can we do?

Proposed Design



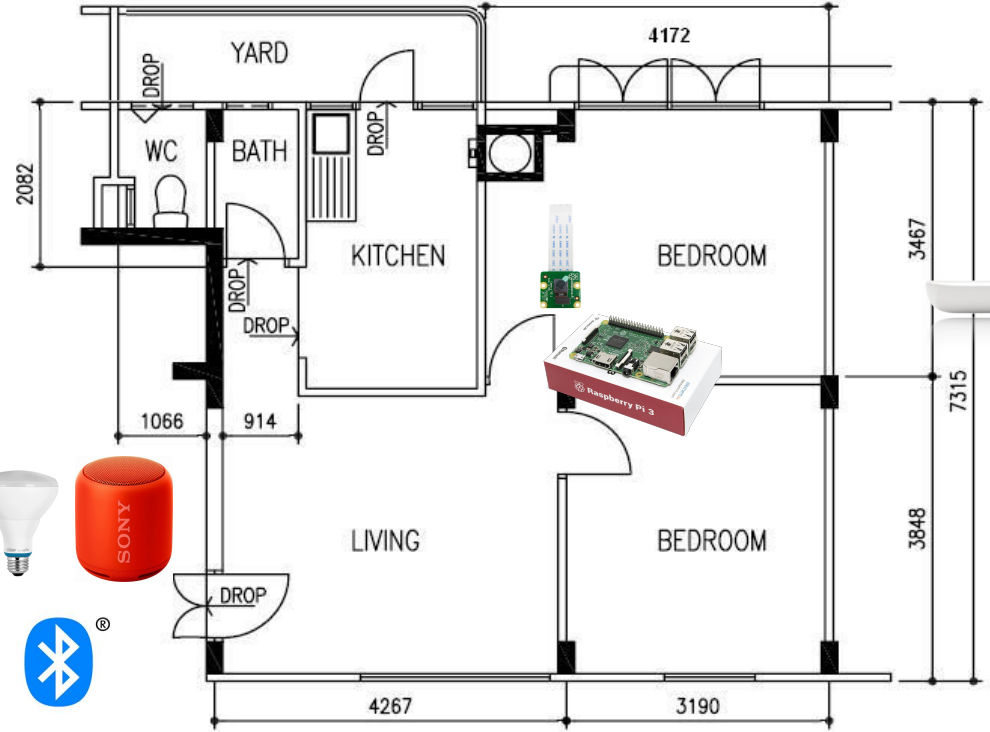


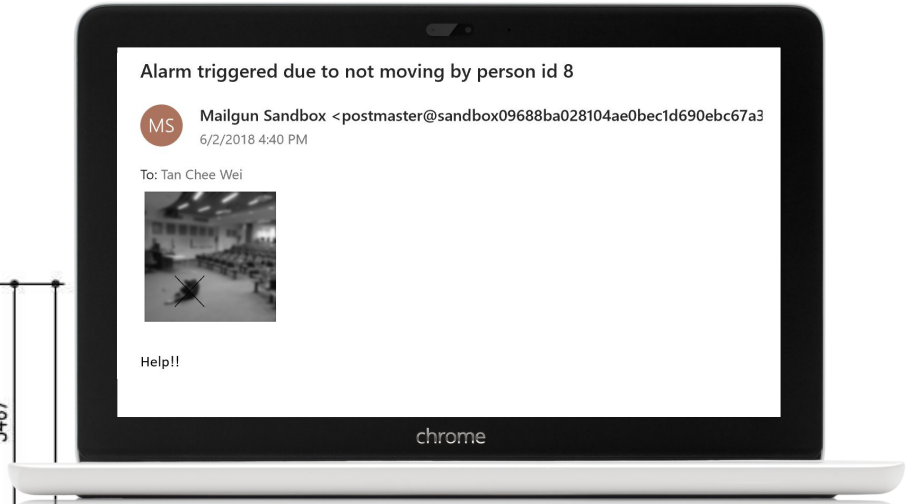
Components

Fall detection algorithm, Camera,
Bluetooth or GPIO Light and Speaker

Raspberry Pi 3

Architecture



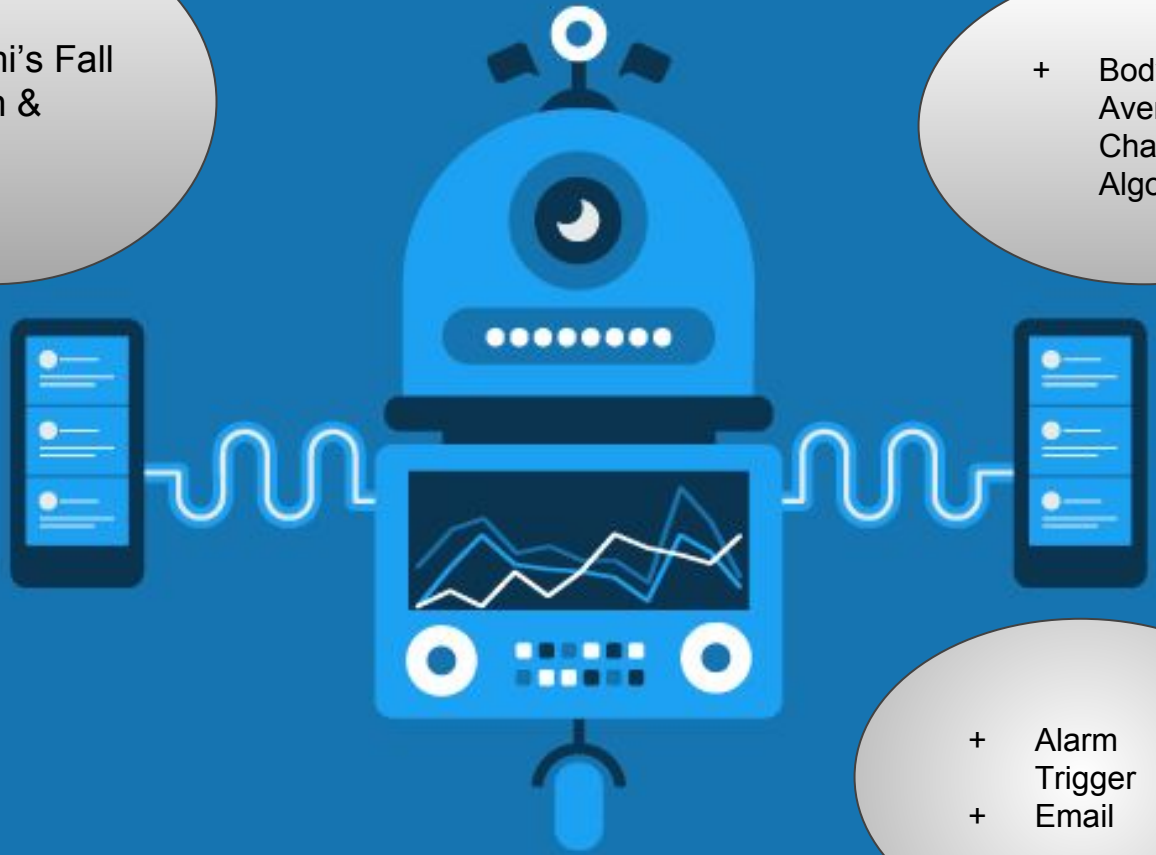


Demo

Fall
Stand

Kim Salmi's Fall Algorithm & OpenCV

+ Body Moving Average Change Algorithm



+ Alarm Trigger
+ Email

Future Enhancement

Machine learning to learn the daily pattern to avoid false alarm

Web service call to SMS, Automated Phone call

Reference

Use Case - https://www.straitstimes.com/singapore/device-keeps-watch-over-the-elderly

Algorithm - http://tunn.us/arduino/falldetector.php

Market - https://www.businesstimes.com.sg/sme/singapore-firms-see-silver-lining-in-eldercare-industry

Questions?

Project name

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