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IoT-enabled Eldercare Technology

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Abstract

The world's population is changing as people are growing older. Leveraging technology for eldercare is important in this century. It can enable many eldercare applications effectively.

Introduction

In the global scale, the number of elderly people since 2019 to 2050 is expected to double. In addition, there will be around 1.5 billion elders all over the world (UN, 2019). Eldercare plays a major role in keeping elderly as healthy as possible. The trend of eldercare is to apply innovation or technology to eldercare needs. Therefore, it is essential to consider incorporating technology such as IoT (Internet of Things) to do so.

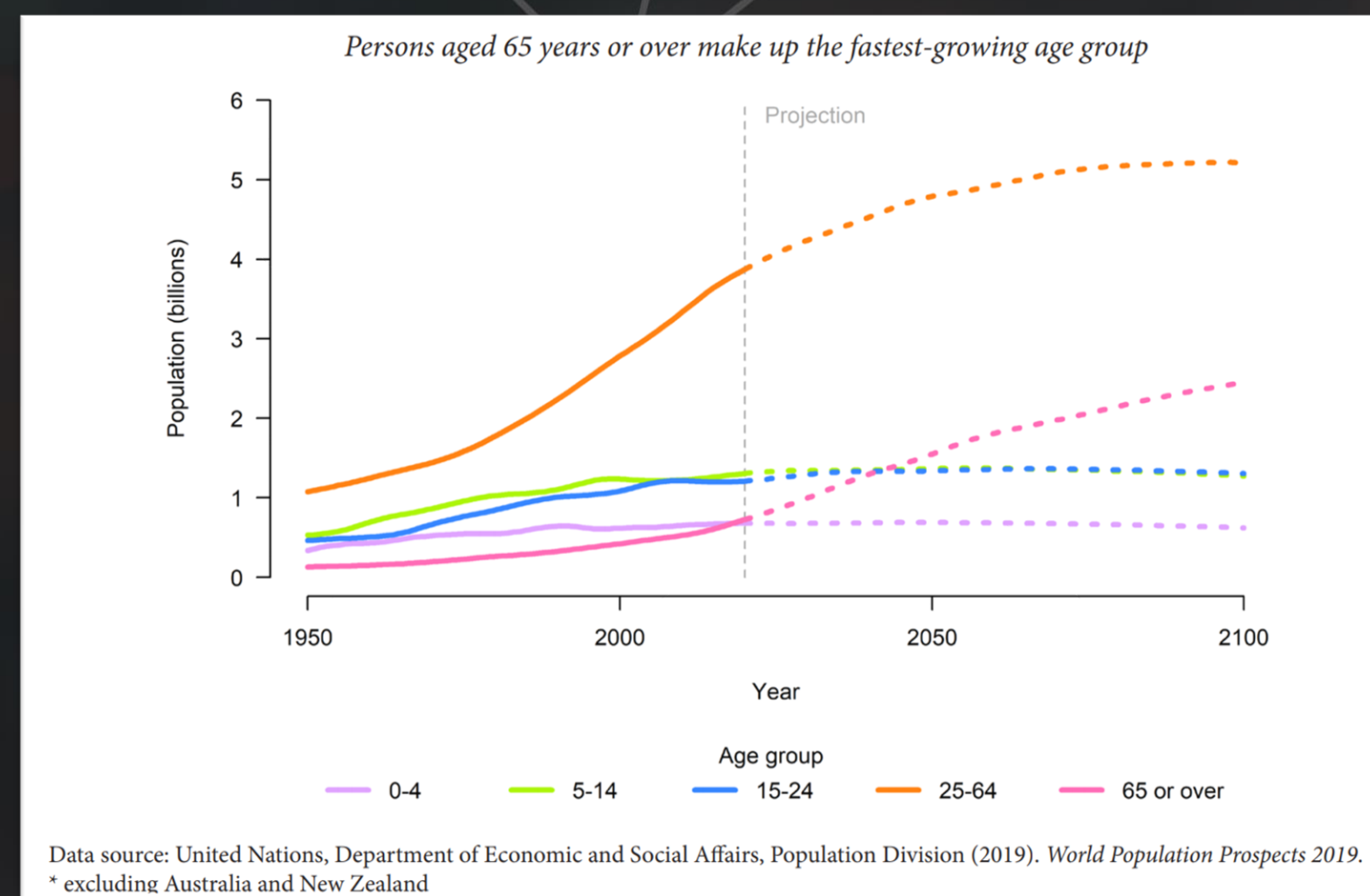
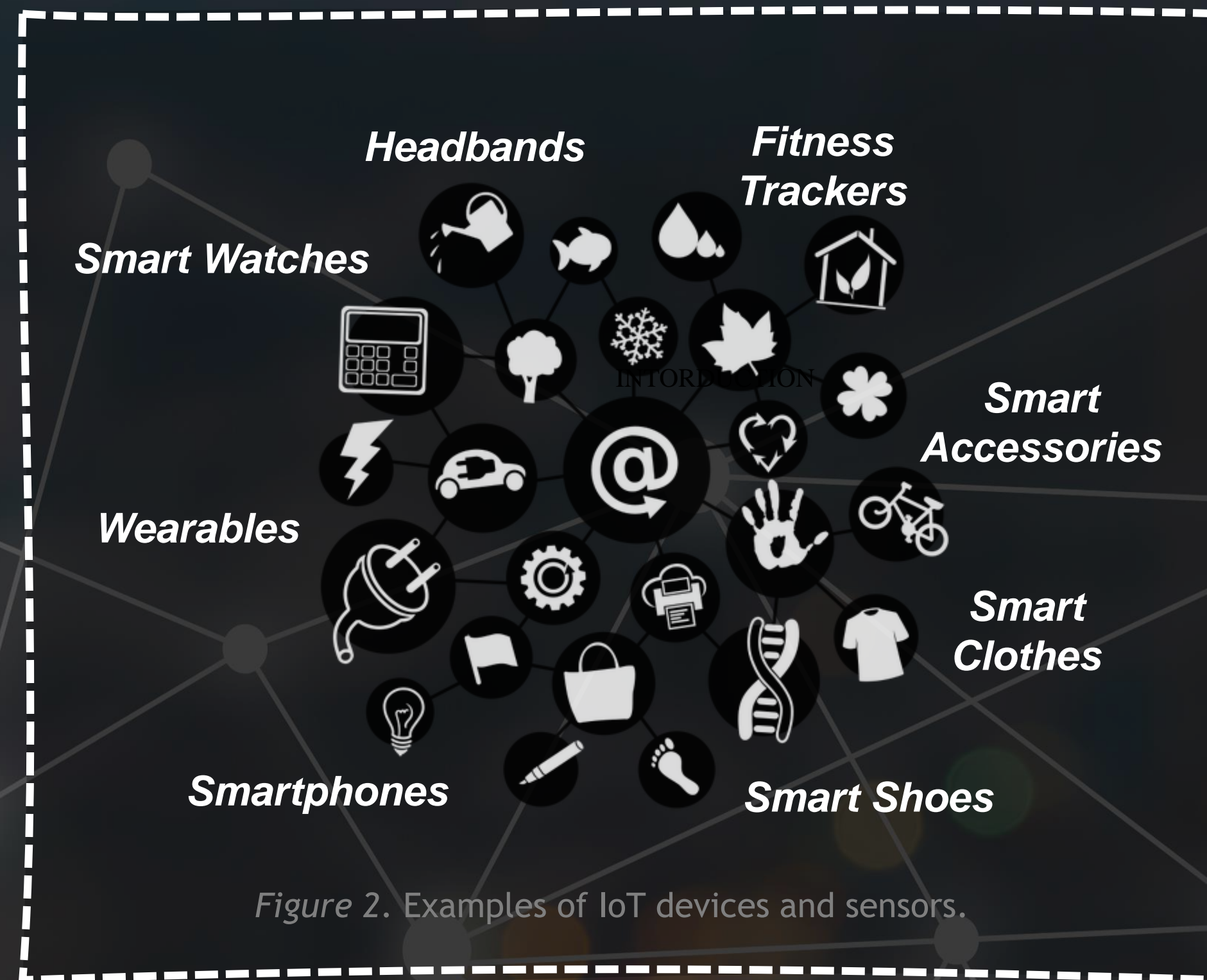


Figure 1. Line graph explains the projection of the number of people who have different ages in the 21st century. (UN, 2019)

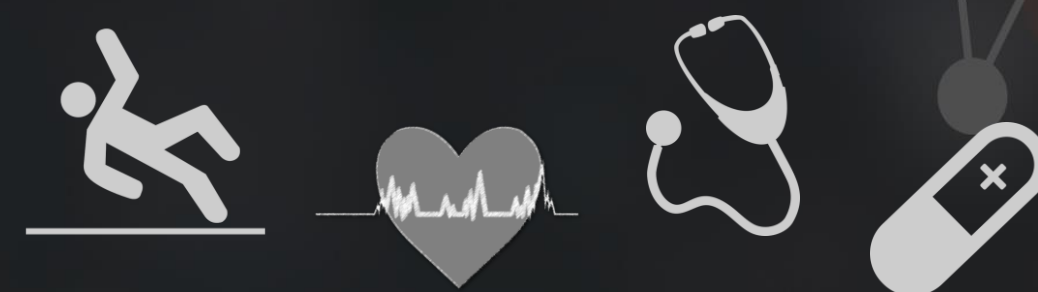
Aging in Place

Aging in place (AIP) is needed by the elderly as they want to live at their place on their own which is the goal of eldercare (Ahn et al., 2020).



Computational Processing

Several technologies have been employed in eldercare. After gathering data from devices, it should be processed to extract some meaningful information. The data together with health records can be inputs for computational algorithms to create eldercare applications (Rantz et al., 2005).



- Health monitoring
- Health alert
- Early illness recognition
 - Motion analysis
 - Fall detection
- Heart failure prediction

Eldercare Application

IoT

Internet of Things (IoT) involves interconnections between the number of devices via internet. The main advantages of IoT is a large amount of data generated by these small devices—or the so-called big data. (Chui et al., 2019) These days a person can own IoT devices easier than ever as they are getting cheaper.

Data

- Gait
- Movement
- Video
- Temperature
- Light
- Heart rate
- Blood pressure
- Health record
- Etc.

Conclusions

Eldercare has changed. Technology together with IoT is going to revolutionize the future of eldercare. Big data generated from IoT devices should be processed with suitable computational algorithms to extract useful health information. Illness trajectory and AIP can be achieved by doing so.

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