

Publication: OpenGov Asia

Date: 12 October 2015

Headline: OpenGov speaks to Dr. Tan Hwee Pink, SMU-TCS iCity Lab

OpenGov speaks to Dr. Tan Hwee Pink, SMU-TCS iCity Lab

12/10/2015, By Jacqueline Kelleher



As the ageing population in Singapore grows, they are becoming increasingly independent and self-caring. The elderly living alone face the risk of not getting help when they need it most. For example, if they fall and cannot get up, it becomes difficult for them to call for the assistance they need. In the past 8 years, Singapore has seen about 50 incidents of this nature. The elderly living alone could have fallen, could not receive the help they needed, and unfortunately, passed away.

SHINESeniors, or Smart Homes and Intelligent Neighbors to Enable Seniors, aims to provide a solution to this developing issue. SHINESeniors is a project which aims to deliver more effective means of community care services through ICT. It is orchestrated through the iCity Lab at the Singapore Management University. SMU and TCS were the key players in founding the project in 2014. This research project is supported by the Ministry of National Development and National

Publication: OpenGov Asia

Date: 12 October 2015

Headline: OpenGov speaks to Dr. Tan Hwee Pink, SMU-TCS iCity Lab

Research Foundation under the Land and Liveability National Innovation Challenge (L2NIC) funding.

The SHINESeniors three year pilot study is currently taking place in Marine Parade. Over 50 participants are taking part in the sensor-enabled homes project thus far. The sensor networks help community care volunteers and health providers better monitor, support, and respond to elderly when needed, both instantaneously and over time, enabling ageing-in-place.

Dr. Tan Hwee Pink is the Associate Professor of Information Systems (Practice) and Academic Director of the SMU-TCS iCity Lab. He has nineteen years of experience conducting research and development in the areas of signal processing, wireless networks, cellular networks, and wireless sensor networks. Dr. Tan has published 21 journal papers, 2 book chapters and 74 conference papers since 1999. Until his current position, Dr. Tan was leading an A*STAR research program on Sense and Sense-abilities.

Dr. Tan spoke to OpenGov Asia about the details of the sensor network, developments being made with the SHINESeniors project, and what the future holds for the iCity Lab. As Dr. Tan explains, "The main objective of the SHINESeniors project is to enable ageing in place. Our focus is to bring together technology and the work of the community care providers."

Dr. Tan starts off by explaining the specifics of the sensor technology. "In the initial phase, the sensors installed in homes are non-intrusive, passive infra-red sensors. They are installed in the corner of each room of the participants' flat to capture active motion behavior. An additional contact sensor is added to the main door to track when they enter/exit," he says. This sensor network caters to the respective privacy of the participants while also gathering the necessary information to relay to care providers. The useful information that can be extracted and monitored over time includes activities of daily living such as toilet activities, sleep patterns, level of social interaction etc.

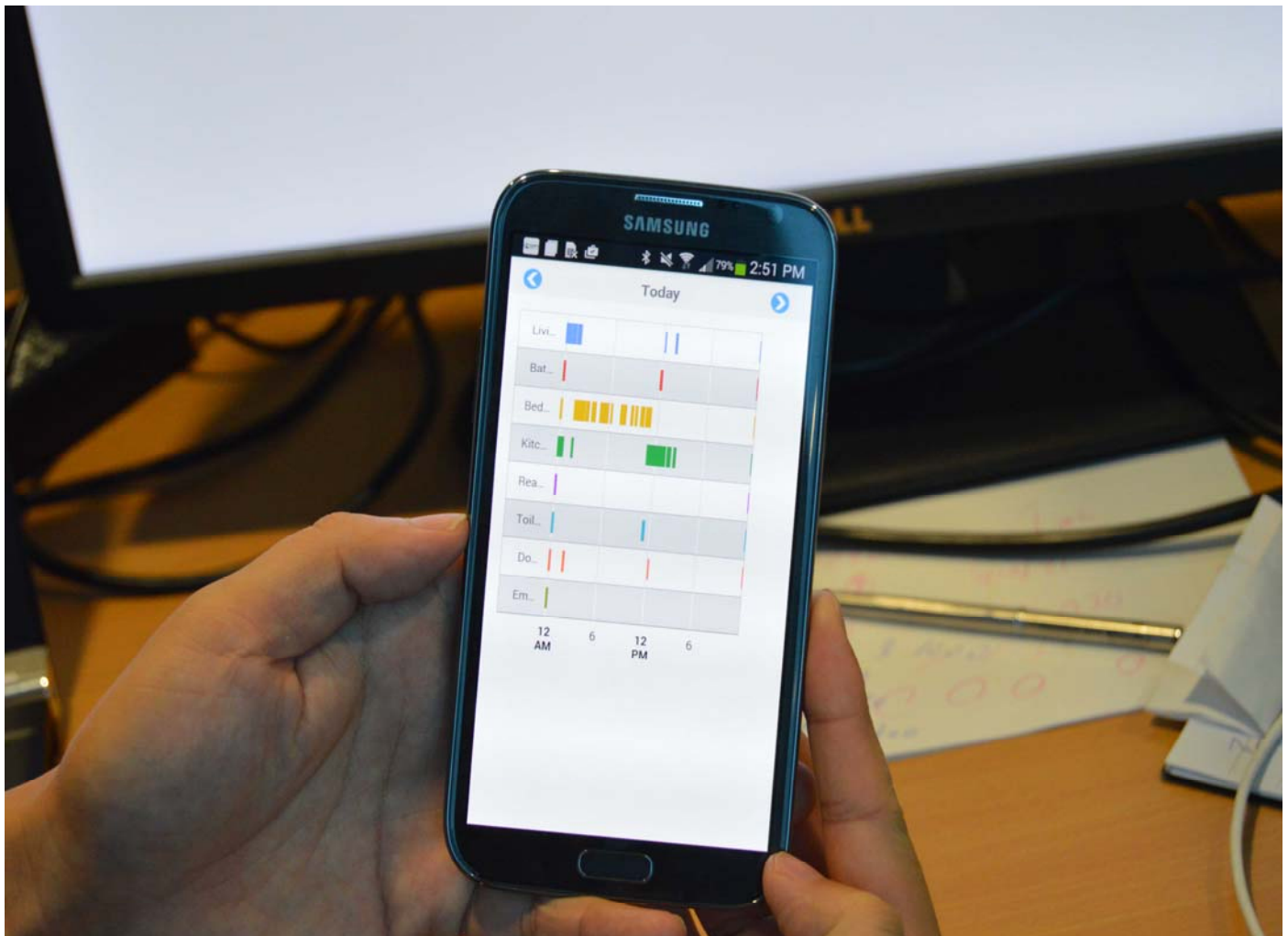
Dr. Tan then described how this intricate sensor network relays messages back to the care response network. He told us, "The sensor network communicates wirelessly to an aggregator called 'the gateway'. The gateway is plugged into a main power line and has 3G connection to a server. The data in the server pushes information through 2 applications. One is a web based

Publication: OpenGov Asia

Date: 12 October 2015

Headline: OpenGov speaks to Dr. Tan Hwee Pink, SMU-TCS iCity Lab

dashboard to track activity and the other is a mobile app that allows [the care provider] to track activity and receive notifications when an incident occurs or if there is extended non-movement.”



Three different viewpoints are involved in this project, which Dr. Tan goes on to describe. From the elderly point of view, they are able to look back on their historical activity. They might look at the activity trends and be more proactive about seeing a doctor when they notice something is abnormal. The healthcare and community care provider are provided peace of mind, knowing that the sensor network will alert when there is a need although they are not due to check in on them. The hospital and care provider can also use this personalized information about the activity of the elderly to better assess their conditions.

Amidst the great achievements of this project, there were some challenges in convincing elderly residents to participate. Asking the elderly to embrace technology solutions, while they may not even have a cell phone to their name, was a challenge. Dr. Tan told us that in partnering with

Publication: OpenGov Asia

Date: 12 October 2015

Headline: OpenGov speaks to Dr. Tan Hwee Pink, SMU-TCS iCity Lab

GoodLife!, a volunteer welfare organization in Marine Terrace, they were able to successfully recruit the 50 participants for the study.



Moving forward, the SHINESeniors project hopes to integrate other varieties of sensors to improve the quality of life of the elderly as well as their carers. Dr. Tan emphasizes that the technology of the sensors depends on the desires of the users and the interests of the care providers. With this, the iCity lab is exploring sensors, among which include those that would detect medication consumption patterns, usage of appliances and utilities, indoor environmental conditions, to name a few.

We were invited into the lab to see some of the researchers working with new sensors to introduce through the project. Some of these sensors are expected to be trialed in selected homes within the next two years. The SHINESeniors project aims to deploy the sensor networks in 100 homes in total, by the middle of 2016.

Dr. Tan is confident with how the SHINESeniors project has differentiated itself. He tells us, "Our study will be a lot more comprehensive than most research studies that are being done. This is

Publication: OpenGov Asia

Date: 12 October 2015

Headline: OpenGov speaks to Dr. Tan Hwee Pink, SMU-TCS iCity Lab

because [the project] ties in the technology along with the care model that is provided by the community partners, and is supported by a rich ecosystem of key partners and collaborators including A*STAR, TCS, Eastern Health Allilance, GoodLife! and various agency partners.”

The SHINEseniors project addresses a pain point in the Singaporean community, as the elderly population is more autonomous than ever before. Through further integration of these innovative sensor networks, the ageing may live with more independence and not as much fear about being left entirely without aid.