



(From left) Mr Jonathon Leong, Ms Fatin Sharafana and Ms Denise Caluza with their arcade games designed to keep seniors fit with the help of dance mats and motion sensors at the Sands Expo and Convention Centre on Oct 11. ST PHOTO: SHINTARO TAY

Arcade games to keep seniors fit clinch top prize in Huawei contest

Ariel Yu

Picture yourself having fun dancing to late Taiwanese songstress Teresa Teng's songs or familiar local classics like Chan Mali Chan in a rhythm game where players step in directions indicated on a screen.

In future, seniors may be able to enjoy this and two other arcade games and stay fit at active ageing centres with the help of dance mats and motion sensors.

The three games, developed by three graduates from the NUS biomedical engineering department,

clinched the top prize of \$20,000 in tech firm Huawei's Tech4City competition, which was held at the Sands Expo and Convention Centre on Oct 11.

The three-person team, Golden Gamers, beat entries from 69 other teams.

Now in its third edition, the competition aims to challenge students to use artificial intelligence (AI) to tackle issues of sustainability and inclusivity.

Mr Jonathon Leong, 26, Ms Fatin Sharafana, 24, and Ms Denise Caluza, 23, created the games, named PrimePlay, after talking to seniors who expressed a lack of interest in the exercise equipment at active ageing centres and fitness corners.

However, arcade games piqued the interest of some seniors they interviewed at the Community for Successful Ageing Whampoa Centre.

Mr Leong said: "A group of seniors specifically said that they are very interested to try arcade games, but the existing games in the arcade are really too intense for them."

The other two games the team developed are designed to improve seniors' grip strength and lower-body fitness.

In addition to the games, seniors can use an accompanying mobile app which monitors their health data such as blood oxygen levels. It can also track their heart rate over a set period of time and offers personalised health recommendations to support their fitness goals.

Team Node won the second prize of \$12,000 for their AI-powered augmented reality platform. It is designed to enrich the lives of the elderly by fostering community engagement, and preserving personal and neighbourhood histories.

The four members of the team are graduates of the Singapore University of Technology and Design and Murdoch University.

Seniors trying to stay active were not the only group that teams in the competition sought to help.

BinaCloud, the team that won the third prize of \$8,000, aims to help commuters with mobility aids, such as walking frames, canes and wheelchairs, move around MRT stations more easily.

Their SGTransaid monitoring system uses existing station cameras to detect these mobility aids and

alerts station staff to assist their users.

The team lead, NUS student Yeo Yu Jie, 24, said he noticed that the newer MRT stations on the Thomson-East Coast Line have clearer signs with better colour contrast and larger font sizes. This makes them easier to read, which can help commuters with mobility issues navigate the stations.

However, the older stations on the East-West Line do not provide such aids.

Mr Yeo added: "If able-bodied adults like us have difficulty navigating older MRT stations, then what about commuters with mobility issues?"

Their solution uses AI and computer vision algorithms to detect such commuters to improve accessibility of public transport.

Mr Yeo and the other BinaCloud members – Mr Jason Yap, 24; Mr Lau Rui Han, 24; Mr Tiang Hui Zheng, 24; Mr Darren Wah, 24; and Ms Lim Ai Lin, 22 – are in their final year of computer science studies at NUS.

The team won an additional cash prize of \$3,000 in the category for best innovation in mobility, which was sponsored by transport operator SBS Transit, one of the event's partners.

Senior Minister of State for Digital Development and Information and National Development Tan Kiat How, who spoke at the awards ceremony, said that platforms such as the Tech4City competition provide the space for innovation and help shape Singapore's digital future.

An example of how these competitions can have real-world impact is the collaboration between SBS Transit and FingerDance, which won the grand prize at Tech4City 2022 with its sign language solution.

The NUS start-up developed Silvia – or Sign Language Virtual Assistant – which can respond to queries that are typed or spoken by providing real-time answers in text and sign language.

Silvia aims to help the deaf community commute independently and confidently on public transport. It was deployed on a trial basis at the Chinatown station on the North East Line in July.

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