A companionship robot for elderly individuals living alone

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**PROJECT MOTIVATION**

The increase in ageing population caused an increase in the number of elderly individuals living alone. Living alone has been found to increase feelings of loneliness, affects social well-being, and is a significant predictor of poor health of elderly individuals. Loneliness has also been found to be a factor in the development of dementia. However, no companionship robots have been made to help Singaporean elderly individuals cope with loneliness. Many of the elderly individuals in Singapore use Hokkien (a Chinese dialect) as their main language and have difficulty understanding English. Hence, the project aims to develop a companionship robot that communicates in Hokkien to help elderly individuals in Singapore.

**PROJECT OBJECTIVE**

Create a companionship robot that is capable of proactively interacting with elderly individuals in Hokkien to provide companionship. It can also help the elderly individuals exercise their brains in order to reduce the risk of dementia. The robot should also help build a conduit for these elderly individuals to be connected technologically. It should be able to track and recognise an elderly individual, deduce their emotions and react accordingly. It will also allow the elderly individuals to complete otherwise complex actions simply through flashing dedicated QR codes.

**THERAPEUTIC ENGAGEMENT**

**TRACKING USER**

So companionship robot will face user when user’s face is detected

**RECOGNISING USER**

Able to track just the user in case there are multiple faces in a frame

**RECOGNISING FAMILY MEMBERS**

1) To recount details of family members
2) Engage elderly individual in a quiz game

**EMOTION DETECTION**

To pro-actively interact with the elderly individual by reacting to emotions displayed to help alleviate loneliness

**CONDUIT FOR ELDERLY INDIVIDUALS TO BE CONNECTED TECHNOLOGICALLY**

QR codes are used as a means of communication with the companionship robot to help easily complete otherwise complicated actions. QR codes can be used to:

- Send SMS
- Respond to Robot
- Stream Internet Radio

**REMINDER + PANIC REACTION**

**REMINDER TO TAKE MEDICATION IN HOKKIEN**

Elderly individual can quickly notify family members when feeling unwell

Optimal distance between companionship robot and user