SKEL 3742

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FAKULTI KEJURUTERAAN ELEKTRIK
UNIVERSITI TEKNOLOGI MALAYSIA
SKUDAI, JOHOR

ECED DEPARTMENT

Alzheimer's Disease: More than Normal Aging

PROBLEM PACK

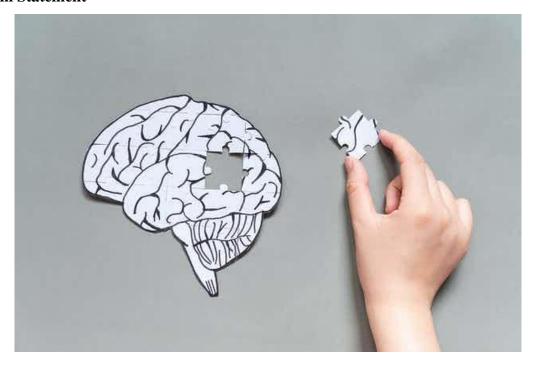| Disediakan oleh	:	Disahkan oleh	: Ketua Jabatan
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Tarikh	: 18 Mei 2022	Tarikh	:

Problem Statement

According to the World Health Organization (WHO), the proportion of the world's population over 60 years will nearly double from 12% to 22% between 2015 – 2020[1]. It is essential for the country to prepare adequate welfare system for the ageing population. As people age, their health, care and support needs become increasingly complex and require integrated and people- centered responses. In support of the 2030 Agenda for Sustainable Goals Development (SDG), the Malaysian government are developing more health and care services for the elderly as part of their efforts to achieve universal health coverage and ensure that national health policies and information systems include people of all ages[2].

You are a volunteer with the Alzheimer's Disease Foundation Malaysia (ADFM) during the semester break. ADFM has set up its Resource and Learning Centre at Petaling Jaya, Selangor in 2020. The centre is equipped with a library, cafe and meeting rooms where volunteers conduct training sessions on dementia care skills to caregivers. They have also conducted many activities, including public awareness programmes on brain health and early detection of Alzheimer, organised World Alzheimer's Month in September each year, and held international conferences on dementia,

To prepare for this year's World Alzheimer's Month, your team is assigned to help ADFM develop a prototype design of a brain monitoring system. The system will be used as a fast and portable diagnostic tool to detect Alzheimer's as some of the tests (neuropsychological tests, lab and brain imaging tests) are required to be conducted at the hospital. Your design consideration should include amplification of the brain signal, filtering of brain signal and minimal noise interference. Considering the elderly/public as your user, the indicator/output of the system should be easily interpreted. The output/indicator can be in the form of audio or/and visual. The proposed design should be submitted in the form of a report and demonstrated to the ADFM committee members for consideration.

[1] World Health Organisation (WHO), *Facts Sheet: Ageing and Health*, October 2021 , https://www.who.int/news-room/fact-sheets/detail/ageing-and-health

[2] United Nations, Sustainable Development Goals, 2015, https://www.un.org/sustainabledevelopment/health/