UNIVERSITI TEKNOLOGI MARA

(ARFit) – DEVELOPMENT OF MOBILE APPLICATION OF FUNCTIONAL ELDERLY EXERCISE BY USING AUGMENTED REALITY

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ABSTRACT

The project is about development of Augmented Reality mobile application for elderly people who want to learn about exercise that can keep their fitness. There are several problems that lead to the development of this project which is the number of elderlies is expected to get higher in the future and they commonly faced the problem of joint inflammation which called as arthritis problem. Also, there are less focus given by developer of mobile application in developing an application that suitable with elderly people. The objectives of developing this project identify the requirement, to design and to develop the development of ARFit mobile application for elderly by using Augmented Reality technology. The scope of this project is focusing on elderly aged 60 years old and above that want to learn about exercise through Augmented Reality technology as it can be an interactive approach to elderly. As the application is focusing on stretching exercise, elderly people will be taught on how to do a proper arm stretching and leg stretching. The limitations of the application are only focused on arm and leg stretching not a full body stretching and only use single language to provide information. The methodology used in developing this project is Rapid Application Development (RAD). This project gives significant value to the elderly people as they can learn about exercise leisurely and it consumed less effort and money to do the exercise. Besides, fitness trainer is significant with this project as they will know what the suitable exercise for elderly people and can give more focus to the elderly in the future. The result of this project show that Augmented Reality give new experience and user interactive to the elderly people. The project will be future developed with providing full body of stretching exercise and other function that is suitable in teaching elderly about exercise such as tutorial video of exercise. Also, the application will come in multi-language in the future.

Keywords: Elderly, Fitness, Stretching Exercise, Health Educational, Augmented Reality, Rapid Application Development (RAD),

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INTRODUCTION

1.1   Project Background

Exercise usually being defined as an activity that the main purpose is to keep our body healthier and fit day-by-day. But, according to World Health Organization (2018), exercise is actually a subcategory of physical activity that is planned, structured, repetitive, and purposeful in improving or maintaining components of physical activity. Physical activity is a movement produced by muscles that require energy expenditure. This include activities done by a person while working, playing, travelling or involving in any recreational activities. Different stage of human age required different amount of time to do physical activity. Regular physical activity provides a lot of benefits to all ages such as improving muscular and cardiorespiratory fitness, improving bone and functional health, and others. As people become older, they tend to become physically inactive due to discomfort and pain such as back pain, sore knee, and so on (Stewart, 2016). This happen globally especially when people age reached 60 years old and above which can be considered as senior or elderly age.

Every country is experiencing growth in the number of older persons in the population of each country in this world. Globally, population of aged 60 years or above growing rapidly than younger age groups. The population aged of 60 years or above increasing about 3 percent every year. Statistic shows that the number of elderly people around the world is projected to be 0.9 billion in 2015, 2.1 billion in 2050 and could be rised to 3.1 billion in 2100 (Fatimah, 2018). According to Malaysia Health Government, MyHealth (2016), the number of elderly people is expected to increase up to 80% from 1990 to 2020 which will be totalling 3.33 million of populations. The proportion of the population aged 60 years and above will increase 14.7% in 2030 from 7.7% in 2010. This shows that elderly people in Malaysia keep increasingly year-by-year. The issues with elderly people are they are lazy and afraid to do physical activity. Malaysia's Health Minister, Datuk Seri Dr S Subramaniam says that Malaysians only