UNIVERSITI TEKNOLOGI MARA

COGNITIVE IMPAIRMENT THERAPY USER INTERFACE WITH REGRESSION MODELS

NADIA SYUHADA BINTI ZAINOR AMRI

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ABSTRACT

Multisensory room (MSR) is one of the therapy for patients with cognitive impairment. Cognitive impairment patients have an issues of interacting with sensory inputs. Therapy sessions take a long period to see the effectiveness this therapy. Therefore, there is need to improve the connectivity and data collection that allow data analytic. This project presented an open source user interface with multisensory room, connectivity for data storage and data analytic. The main objective of this project to develop an open source user interface for connected multisensory room. Second objective to provide a data storage for the collection data of multisensory room in every session. Third is to provide a regression model for the data from multisensory room to help doctor's observation and decision for next treatment. For the user interface, it will receive sensorial games data from microcontroller by serial port for every therapy session. Next, therapist will assist the patients during the therapy and monitored the patient by sensorial checklist and behaviour checklist by using the user interface. Then, from the user interface, all the data will automatically save in the Microsoft Excel. Therefore, by using artificial data that have been discussed with medicine team, Microsoft Excel will give the regression model for each data. Hence, the regression model will help doctor to do the decision for next treatment.

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INTRODUCTION

1.1 RESEARCH BACKGROUND

A multisensory room is designed to promote intellectual activity and to encourage relaxations. Multisensory room is a devoted room or space that attracts the memory using primary sense. The multisensory room make use to develop several sense which are vision, movement, tactile and heart rate by using sensing equipment. Patients with cognitive impairment does not develop normally in term of limitation of movement, vision, hearing, smelling and have issues with interacting with sensory inputs. Cognitive impairment therapy sessions are found effective with multisensory room.

1.2 MOTIVATION

Therapy sessions take effect at different rates depending on patient's condition and responses. It often took across long period for it to be noticeable. The multisensory room monitored by the user interface. By this user interface, therapist able to observe the pre-therapy, during therapy, post-therapy and overall sessions. This user interface