Universiti Teknologi Mara

Smartphone Based Wound Shape Measurement

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"In the name of Allah, the most Gracious and the most Merciful
May His blessing be upon the Prophet Muhammad S.A.W."

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ABSTRACT

A wound is a kind of injury that occurs relatively quickly in which skin is punctured, cut or torn. Wound can be classified into two categories that are open wounds and closed wounds. An open wound is an injury involving an external or internal break in body tissue, usually involving the skin meanwhile closed wound the skin is intact and the underlying tissue is not directly exposed to the outside world. In this project, an open wound is be used as target wounds. Wound healing process is a series of actions collectively undertake by the body for healing. In order the clinicians to assess the wound healing process, the clinicians observe the wound by its dimensions each time of their meeting. Current method used by clinicians is visual assessment. Different clinicians used different technique to measure the shape of wound, thus this project aim's is to standardize the way of wound shape measurement by developing a mobile application. Iterative Waterfall model is the chosen research methodology for this project. User target for this project area is medical practitioners. Patients also can use this application. The result of this application is wound shape size in term of length, width and area according to National Pressure Ulcer Advisory Panel. There were two testing conducted on this application which is functionality and accuracy testing. In functionality testing, one respondent from UiTM Sungai Buloh nurse staff conducted this testing and there was 20 wound images used as data for accuracy testing. As result, the respondent satisfied with the application developed and recommended to use the application as a regular basis. However, result of accuracy testing shows that the measurement of this application is inaccurate. From twenty wound images be tested, only three wound images successfully get the accurate size of wounds. This application can be improved its accuracy by implement a better segmentation method and algorithm.

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CHAPTER 1

INTRODUCTION

This chapter views the background of the project which is an introduction of the project. It provides details of the problem, objectives, scope and significant of the project.

1.1   Project Background

A wound is a kind of injury that occurs relatively quickly in which skin is punctured, cut or torn. Wound can be classified into two categories that are open wounds and closed wounds. An open wound is an injury involving an external or internal break in body tissue, usually involving the skin meanwhile closed wounds the skin is intact and the underlying tissue is not directly exposed to the outside world. In this project, an open wound is be used as target wounds. Wound healing process is a series of actions collectively undertake by the body for healing. Cleaning, closure and dressing are the type of wound treatments that must be undergone by the patient. Doctors describe the wound progress by its physical dimension and the colour of the tissue (Wang et al., 2015).

Pressure ulcers are the type of wound in this research area. Pressure ulcers is an open wounds and happen due to pressure enforce to soft tissue resulting in fully or partially obstructed blood flow to the soft tissue.

The development of technology in our world now has made our life become easier. The existing of smart phone, tablet, or other device gives such benefits like constant internet access, application and all-in-one device (Tomasovic, 2014). These devices are rapidly becoming one of the main tools for accessing clinical information. A few studies have highlighted the use of