Abstract

The physical condition that affects the way the human body processes sugar (glucose) is known as diabetes. It is an alarming issue and is one of the major causes to prolong human wounds. Wounds examination process involves an expertise and constant follow ups to check and recommend wound details. This is a costly process and troublesome in case of bed ridden patients. Various systems like MEdical Digital PHOtogrammetric System (MEDPHOS), Measurement of Area and Volume Instrument System (MAVIS) have been developed for wound assessment. The systems suffer from high cost and maintenance. Moreover, these also need an expertise to perform assessment. As smart phones have become the part and parcel of our lives, this project attempts to make use of Smart phones with a high-resolution digital camera, assessing wounds by analyzing images of chronic foot ulcers. In this paper, we have developed an android based smartphone based solution involving the patients or hospital nurses actively. Additionally, we have also developed an online “Experts review” system which would send the image analysis notifications to the user. The proposed system consist of an android-based PC application. The user captures the image and uploads the image to the database. The image is
Design of Smartphone-based Wound Assessment System

then processed against the K-shift algorithm. The inferences like the wound status are then sent to the user and the image is also sent for expert review. The experts then examine the image, and based on the status of the wounds, they suggest for any changes in the treatment. Our simulation results show that the wound detection using K-mean shift algorithms gave good accuracy of approximately 80%. This shows that with this smart phone system provides promising accuracy for wound image analysis.

References

4. Hazem Wannous, Yves Lucas, Sylvie Treuillet, “Efficient SVM Classifier based on colour and texture region features for wound tissue images”.

Index Terms

Computer Science  Information Sciences

Keywords

Diabetes; android based smartphone; mean shift; image processing