

DEVELOPING A NON-INVASIVE METHOD TO RECOGNIZE WOUND HEALING STAGES FOR DIABETES BY USING SPECTROGRAPH SENSOR WITH ANDROID APP STORAGE

Mr. Venkatesan ¹, Sanjaykumar M ², Santhosh R ³, Siva N ⁴, Santhkalyan M ⁵

Assistant Professor ¹, U.G Students ^{2,3,4,5} Department of Electronics and Communication Engineering, Adhiyamaan College of Engineering, Hosur, Krishnagiri, Tamil Nadu, India.

¹Venkateshace82@gmail.com, ²sanjaykumarsurya76166@gmail.com, ³santhoshraja2699@gmail.com, ⁴sivasarath82@gmail.com, ⁵santh9679@gmail.com

Abstract: Diabetic foot ulcers represent a significant health issue. Currently, clinicians and nurses in the main base their wound assessment on visual examination of wound size and healing standing, whereas the patients themselves rarely have a chance to play a vigorous role. Hence, an additional quantitative and cost-efficient examination methodology that permits the patients and their caregivers to require an additional active role in daily wound care probably will accelerate wound healing, save travel price and scale back aid expenses. Considering the prevalence of good phones with a high-resolution photographic camera, assessing wounds by analyzing pictures of chronic foot ulcers is a gorgeous choice. In this project, we tend to propose a unique wound image analysis system enforced only on the mechanical man good phone. The wound healing analyzed spectrograph detector and warmth additionally live victimization temperature detector knowledge are going to be store daily on the good phone with the help of Associate in Nursing detector. Specifically, the define of the foot is set supported color, and therefore the wound boundary is found employing an easy connected region detection methodology. Within the wound boundary, the healing standing is next assessed supported red-yellow-black color analysis model. Moreover, the healing standing is quantitatively assessed, supported analytic thinking of your time records for a given patient. Experimental results on wound knowledge collected. The doctor will straightforward to diagnose primarily based sensible phone knowledge storage healing stages-based prescription may be provided. Keywords: AVR 16-bit Microcontroller, Temperature device and robot Application.

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I.INTRODUCTION

A correct and thorough wound assessment is a necessary part of best wound care. A wound assessment serves 2 vital functions to work out wound severity so as to predict expected rate of wound healing and develop a comprehensive set up of care and to act as a reliable outcome live which will be accustomed assess the effectiveness of a given wound treatment program. A key parameter that ought to be enclosed in an exceedingly wound assessment is that the measure of wound extent. many strategies of determinant wound size are developed and valid as well as wound depth, area has conjointly been performed, and though stereo photographic determinations could also be most correct, the utilization of a wound tracing onto clear acetate or calculations made up of length/width measurements area unit thought-about reliable and straightforward to use. Alternative determinants of wound healing that ought to be enclosed in an exceedingly wound assessment area unit the analysis of wound take and wound severity. This requires examining wound exudates and death tissue kind, the number and characteristics of death tissue, granulation, and epithelialization, and assessing the viability of the wound edge and per ulceration skin. to assess these elements of wound healing, many assessment tools are developed together with the bedside standing tool (past), the pressure ulceration scale for healing (push tool), the Sussman wound healing tool (swht) the sensing scale, and therefore the wound healing scale (whs). Recent reviews of those wound standing measure tools found that a minimum of 2 of those

scales (psst and sessing scale) have adequate revealed within the info to be thought of valid and reliable measures of wound healing in chronic pressure ulcers. all of those wound standing tools or scales need that Associate in Nursing knowledgeable attention skilled United Nations agency is trained in wound analysis perform a side assessment of the wound bed, wound edge, and per ulceration skin and assign variety to the wound that best describes the observations created. all of the instruments presently obtainable to assess wound standing (except for the who) were developed specifically to be used on pressure ulcers. None are shown to accurately assess the looks of chronic tube-shaped structure leg ulcers like diabetic, venous, or blood vessel ulcers.

II.EXISTING METHOD

This system is healing process method [1] Monitoring the wound healing process is a heavy task for clinicians and nurses as it is necessary to assess the wound. All types of wounds need assessment; not only routine wounds but also ulcers, burns, traumatic or surgical wounds. For individuals with type 2 diabetes, foot ulcers constitute a significant health issue affecting 5–6 million individuals in the US. Foot ulcers are painful, susceptible to infection and very slow to heal. [2] Wound image analysis is implemented by using a proposed system which consists of the mean shift algorithm, wound boundary determination method and color segmentation method to detect the wound healing status. Previous methods like level set method, SVM have many disadvantages i.e., it is to cost effective. When the skin color is not uniform enough it gives false edges and missing boundaries. So, in order to solve these issues a better method is required like adaptive mean- shift segmentation algorithm. [3] Wound image assessment system consists of several processes including image capture, wound image storage in database, wound image pre-processing, wound edge determination, wound color segmentation and wound trend detection. The wound image is captured by a Smartphone and then it is stored in the image storage database. Image preprocessing is the first task after Image capturing.

Image pre-processing step minimizes the high-resolution image in order to increase the speed and to eliminate the

unwanted details. [4] Wound image assessment system consists of several processes including image capture, wound image storage in database, wound image pre-processing, wound edge determination, wound color segmentation and wound trend detection. The wound image is captured by a Smartphone and then it is stored in the image storage database. Image preprocessing is the first task after Image capturing.

Image pre-processing step minimizes the high-resolution image in order to increase the speed and to eliminate the unwanted details. [5] The segmentation algorithm can be adjusted to provide sufficient space for skin color smoothness by changing the resolution parameters. This mean-shift algorithm analyzes the image feature space to cluster. This algorithm demonstrates the element vectors associated with every pixel as samples from an unknown probability density function $f(x)$ and then find clusters. The mode is known as the center for each cluster. Specified n data points, $I=1..n$

In the dimensional space. Methodology Skin wounds either minor or chronic could heal up with totally different time durations. but, this point period of healing couldn't be simply foreseen as healing is full of various factors, e.g., age, nutrition, medication, and surroundings. despite these factors, wound characteristic additionally plays a job within the healing method.

Therefore, observance of wound healing additionally needed careful thought of wound characteristics. though the health care domain contains several applications for detection and observance of diseases, the wound care domain needs economical techniques and sensing systems for the identification of wound biomarkers.

III.PROPOSED SYSTEM

In the current analysis, we offer a wound care answer supported a biosensor-based sensing system to live basic biomarkers, thought-about as major wound characteristics, i.e., style a fuzzy illation system to predict their impact on wound association, that ultimately recommends necessary actions to spice up healing. Fig 3.1 Block Diagram Diabetic wound images are collected from the open-source database. The color segmentation is done through spectrograph sensor. The Region of Interest (ROI) is extracted from the segmented image,

different textural and color-based features are extracted and classified diabetic wound images using classifiers. The system overview of the proposed method to segment the diabetic wounds and healing process done here.

IV. BLOCK DIAGRAM

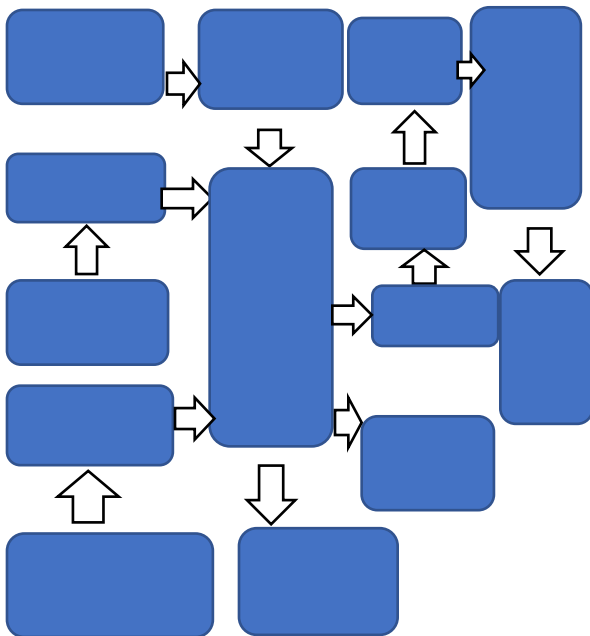


Fig.4. Block Diagram for Proposed System

V. EXPERIMENTAL RESULTS

This is result of healing process keel development tools for the 8051 Microcontroller Architecture support every level of Software developer from the professional applications engineer to the student just learning about embedded software development. The KEIL C51 C Compiler for the 8051 Microcontroller is the most popular 8051 C compiler in the world. It provides more features than any other 8051 C compiler available today. The C51 Compiler allows you to write 8051 Micro controller applications in C that, once compiled, have the efficiency and speed of assembly language. Language extensions in the C51Compiler give you full access to all resources of the 8051. The C51 Compiler translates C source files into Reloadable object modules which contain full symbolic information for

debugging with the μ Vision Debugger or an in-circuit emulator. In addition to the object file, the compiler generates a listing file which may optionally include symbol table and cross reference information. Fig 5.1,5.2 is shows.

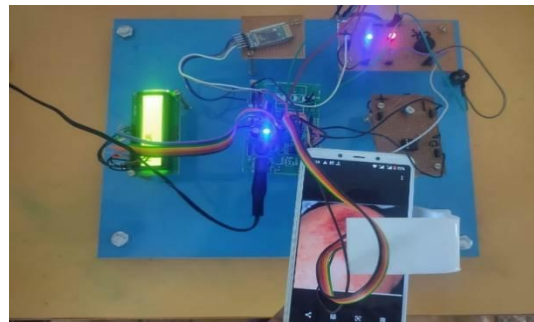


Fig.5.1 Experimental Setup

VI. CONCLUSION

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