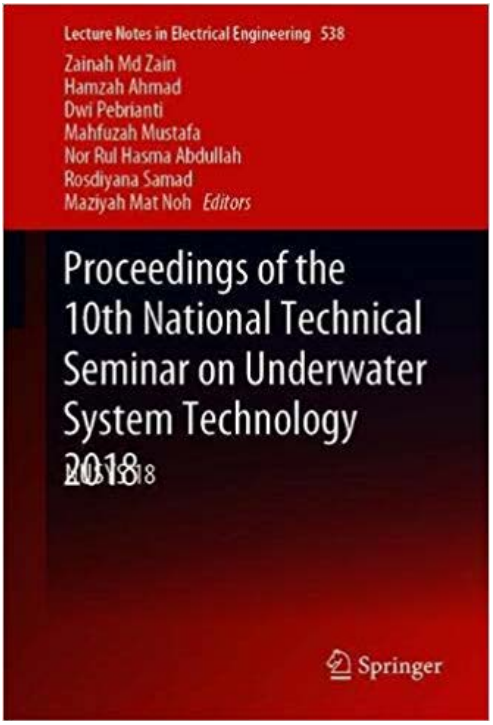

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Contents

Enhancement on Stain Detection for Automatic Handwashing Audit Vision System

Faradila Naim, Muhammad Aizat Romaino and Rosyati Hamid

Abstract Hand hygiene of the health care worker is critical to prevent infectious disease such as airborne diseases, nosocomial infections, and Hepatitis A among patients. Currently, the handwashing audit among hospital staffs are done manually by observation from an expert. There is a need for automation ease the process and accuracy in detection using vision system. This paper focus on the enhancement of the established prototype and the detection system by the additional third template. The prototype is enhanced by size reduction, sturdier material and hands placement base. The vision system uses a robust threshold to detect the discolored stain with an enhancement on stain templates. The detection and recognition of palm in images is a key research topic that has attracted attention owing to an unveiling human perception mechanism. The system accuracy has increased by 40% from previous work by the enhancement which for three cases the system accurately detects stains on washed hands with Glogerm by 71% and unwashed hand with GloGerm by 81%.

Keywords Handwashing · Hand detection · Image processing

1 Introduction

Hand hygiene is an important aspect of health control. A number of infectious diseases can be spread from one person to another by contaminated hands. These diseases include gastrointestinal infections, such as Salmonella, and respiratory infections, such as influenza. Washing hands properly can help to prevent the spread of the germs (like bacteria and viruses) that cause these diseases. To reduce the infection of the diseases, the hand-washing screening audit's method was done manually. Thus, this process can be automatically detecting the area of unclean hand without the help from the human expert. The goal is to accurately detect stain percentage that using technology likes computer to help this process. Hand washing using plain soap will

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