

Design of a Wearable Fingertip Haptic Braille Device

Mohammad Saadeh, Mohamed Trabia, Yantao Shen, and Sami Fadali

University of Nevada, Reno, NV

Existing technologies and devices have facilitated the interaction of the blind or visually impaired (BVI) with their surroundings. However, reading remains an area where the potential of these technologies is not fully utilized. This work presents preliminary studies for the design of a finger-wearable E-Braille device that will allow the BVI to read electronic documents as they would read any document in Braille. The proposed device is wearable on a single finger on of the distal and middle phalanges (dorsal side). The main elements of the device are electrotactile

display and force sensor. The electrotactile display is an electric board containing a matrix of electrodes that sends current to the fingertip for stimulating the touch feeling of a particular Braille character. By sending a sequence of Braille characters to this board, information can be sent to the user of the device through the generated electrotactile feeling. The force sensor is used in a feedback control loop to maintain steady contact pressure between the fingertip and the display board throughout the reading process. The entire finger-wearable E-Braille tactile display device is composed of a housing that can be customized to individual users, a miniature dc motor, mechanical components, and main elements. The initial testing of the proposed device is underway. Preliminary results indicate that the device can provide tactile sensation similar to that of reading a Braille document. The initial assessment of the device usability is underway.

Active Management of Healthcare Operations: A Dynamic System View of Healthcare Delivery

Dennis Moen and Lynn Meredith

Lockheed Martin

The migration to modern information systems and advancement in noninvasive health monitoring devices enable highly mobile users to support increased efficiencies and improvements in delivery of healthcare. Users of these systems are likely to have different needs or views of information either because of organizational

role or because of geographic location. In this distributed architecture, available resources must dynamically be able to be reassigned to respond to external factors such as changes in the environment, changes in short-term objectives, reallocation of responsibilities, and changes in resource consumption patterns. This paper describes a framework for healthcare decision making and management of healthcare operations through the application of dynamic resource management using information technology for what we call active management of healthcare operations.