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Non-Contact Human Movement Monitoring Technique for Security Control System Based 2n Electrostatic Induction

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Abstract : In this study, an effective non-contact technique for the detection of human physical activity is proposed. The technique is based on detecting the electrostatic induction current generated by the walking motion under non-contact and non-attached conditions. A theoretical model for the electrostatic induction current generated because of a change in the electric potential of the human body is proposed. By comparing the obtained electrostatic induction current with the theoretical model, it becomes obvious that this model effectively explains the behavior of the waveform of the electrostatic induction current. The normal walking motions are recorded using a portable sensor measurement located in a passageway of office building. The obtained results show that detailed information regarding physical activity such as a walking cycle can be estimated using our proposed technique. This suggests that the proposed technique which is based on the detection of the walking signal, can be successfully applied to the detection of human walking motion in a secured building.

Keywords : human walking motion, access control, electrostatic induction, alarm monitoring
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