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Design and implementation of an inductive-based human postures recognition system (Conference Paper)

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Abstract

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This paper describes the design and implementation of an inductive-based human postures recognition system during Muslim prayers or 'Solat'. Inductive sensors are preferred over contact sensors as they allow remote detection of postures. An array of inductive sensors are placed underneath a prayer mat to sense four different postures namely Woquf, Rokoo, Sojod and Qood. Each inductive proximity sensor comprises of a modified inductive loop, with inner and outer loops and three capacitors. The design of the sensing circuit was simulated using both MATLAB and Multisim. Nine identical sensors, with each sensor placed on a different zone on the prayer mat, are connected in parallel to a ChipKit Max32 development board. The sensors send analog signals that are digitized by the board and sent to a PC as frequency plots. Posture identification was done by analyzing the triggered zones. Experimental results are in agreement with both the analytical and simulation results and can successfully distinguish the different postures remotely. © 2014 IEEE.

Author keywords

inductive detection Inductive loop inductive loop based detection inductive sensing technique

Indexed keywords

Engineering Biomedical engineering Design MATLAB Proximity sensors

controlled terms:

- Analog signals
- Chipkit max32
- Design and implementations
- Human postures recognition
- Inductive loops
- Inductive sensing
- Remote detection
- Sensing circuits

Engineering main heading: Inductive sensors

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