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Human location estimation using thermopile array sensor (Conference Paper)  
(Open Access)

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Utilization of Thermopile sensor at an early stage of human detection is challenging as there are many things that produce thermal heat other than human such as electrical appliances and animals. Therefrom, an algorithm for early presence detection has been developed through the study of human body temperature behaviour with respect to the room temperature. The change in non-contact detected temperature of human varied according to body parts. In an indoor room, upper parts of human body change up to 3°C whereas lower part ranging from 0.58°C to 1.71°C. The average changes in temperature of human is used as a conditional set-point value in the program algorithm to detect human presence. The current position of human and its respective angle is gained when human is presence at certain pixels of Thermopile's sensor array. Human position is estimated successfully as the developed sensory system is tested to the actuator of a stand fan. © Published under licence by IOP Publishing Ltd.

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