

Pilgrim Tracking System using Active RFID Wristband Tags

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Abstract

Every year Muslims from all over the world gather in the Holy city of Makkah and the Holy city of Medina in the Kingdom of Saudi Arabia for pilgrimage. With the increased number of pilgrims every year the problems and difficulties facing the pilgrims and the Hajj authorities have also been on the rise – especially in crowd control and the prevention of accidents. A significant number of pilgrims die due to both accidents and natural causes, and a large number get lost in this extremely crowded gathering. The authorities are faced with the problem of tracking pilgrims so that better service could be provided to pilgrims.

In this paper, we present the result of a pilot study conducted during the past Hajj season of ١٤٢٨. We have developed a prototype Pilgrim Tracking System that employs an active wristband RFID tag, an RFID reader and Graphical User Interface application running on a PC. A wristband RFID tag worn by a pilgrim that stores pilgrim data can be used for identification, as a Hajj permit, to access medical history during an emergency, and as an e-purse. The tag can be recognized at a distance of up to ٨٥ meters. Several experiments have been performed on recognizing a pilgrim with the tag within the crowd, while in cars, or busses. A demo of the working system will be presented in the conference in addition to the results of the experiment