



FUZZY-BASED FILTERING SOLUTION SELECTION METHOD FOR DYNAMIC SENSOR NETWORKS¹

HEE SUK SEO[†], HAE YOUNG LEE[‡], SEUNG JAE LEE[†], DEOK GYU LEE^{*2}

*[†] Korea University of Technology and Education
Byungcheon 330-708
Republic of Korea*

*[‡] Sungkyunkwan University
Suwon 440-746
Republic of Korea*

*Korea University of Technology and Education
Byungcheon 330-708
Republic of Korea*

^{} ETRI (Electronics and Telecommunication Research Institute)
138, Gajeong-ro, Yuseong-gu, Daejeon, 305-700
Republic of Korea*

ABSTRACT—In wireless sensor networks, adversaries can compromise sensor nodes and use them to inject forged reports, which can lead to false alarms and energy depletion. Recently, several research solutions have been proposed to detect and drop such forged reports during the forwarding process. Since each of them has its own energy consumption characteristics, employing only a single filtering solution for a network is not a recommended strategy, in terms of energy savings. While a technique for the adaptive selection of filtering solutions has been proposed, it considers only static networks. This paper presents a fuzzy-based filtering solution selection method for dynamic sensor networks. In order to save energy, a fuzzy rule-based system chooses between two filtering solutions and controls detection power by considering network status. The effectiveness of the proposed method is shown by the simulation results described in the final part of the paper.