ABSTRACT

NODE LOCALIZATION IN AD-HOC NETWORKS BASED ON PARTICLE FILTERING ALGORITHMS

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Technological developments are increasingly rapidly penetrating every aspect of human life, because with the existence of technology human work can be helped, therefore technology continues to be developed so that it is more effectively used, especially in emergencies. An example of a technology that can be used in an emergency is AD-HOC wireless network technology. However, when using the AD-HOC node, you cannot use GPS because GPS uses satellite signals for communication. Therefore it is necessary to have a technology that can replace GPS technology to perform localization on AD-HOC networks. Particle filtering is a WSN algorithm which is an application to wireless networks that is able to obtain information from wireless network nodes, one of which is position estimation or localization. The advantage of the Particle Filtering algorithm is that it can be used in non-linear systems or the value changes. In this study, Particle Filtering was able to localize the Raspberry Pi as a node quite well, even though it had a high number of errors, which was more than 0.4 and the localization position was still changing.

Keywords: AD-HOC, Raspbery Pi, Localization,Particle Filtering