

ABSTRACT

Wireless Sensor Network (WSN) is a wireless network consisting of several devices in a certain area (geographical base on) which use sensors that integratedly monitor physical or environmental conditions (air temperature, sound, vibration, pressure, movement or pollution) at any diverse location. Node on WSN move dynamically, uses batteries as its power source and has disadvantages such as low cost, and limitations on computing, information storage capacity and power

Node on the Wireless Sensor Network (WSN) moves dynamically and works continuously, causing the node to run out of power and stop working, for that this thesis creates a communication group on a WSN network, scattered sensor nodes in a vulnerable and spacious environment, in order to avoid intruders, it is needed its group authentication to authenticate new node that will enter the group and the group can also authenticate mobile sinks that approach it.

This thesis proposes the creation of a communication group on the Wireless Sensor Network which functions to save power on the sensor nodes, the simulation based on ONE Simulator, with scenarios variation of with sekenario changing the simulation time of 10000, 20000, 43200, and 86400 seconds. From the parameters used will be calculated throughput, delay, and loss packages. In the results of simulation time is 2.7 hours, then the resulting throughput is 3.2 bits/s with an average delay of 4.9 minutes, and the loss package is 3.6 kb.

Keywords: Group Authentication, Wireless Sensor Network, ECDH, J-PAKE.