



UTILITY BASED DATA GATHERING IN MOBILE SENSOR NETWORK

Liu Jieyan¹, Wu Lei², Gong Haigong¹

¹ School of Computer Science and Engineering

University of Electronic Science and Technology of China

Chengdu, China

² School of Mathematical Sciences

University of Electronic Science and Technology of China

Chengdu, China

Email: Liujiy@uestc.edu.cn

Submitted: Oct. 9, 2012

Accepted: May 10, 2013

Published: June 5, 2013

Abstract - Traditional data gathering approaches cannot be applied to Mobile Sensor Network (MSN) due to sparse network density and sensor node mobility. In this paper, we propose a utility based data gathering protocol (UDG). The distance utility is used to indicate the closeness between sensor nodes and the sink node, and the activity utility is used to evaluate the ability of sensor nodes acting as relays. UDG combines the distance utility with the activity utility to make routing decisions. It also presents a buffer management scheme based on the utility. Experimental results show that UDG achieves desirable performance with low delivery overhead.

Index terms: Mobile sensor network, location prediction, order- k Markov chain, distance, activity, utility, data gathering.