



A visit design of a data collector robot in a wireless sensor network

Marcia Helena Barbian*
UFRGS/UFMG, Porto Alegre, Brasil - mhbarbian@gmail.com

Renato Martins Assunção
UFMG, Belo Horizonte, Brasil - assuncao@dcc.ufmg.br

Andrea Iabruti Tavares
UFOP, Ouro Preto, Brasil - andrea.iabrudi@gmail.com

The purpose of a sensor network is to monitor physical or environmental characteristics in a region such as temperature, pressure or humidity. Due to the great difficulty of replacing batteries of sensor node, power consumption becomes a critical factor in the network. The main energy demand is due to the transmission data. In this context, this project proposes a robot visit only part of sensors and perform data collection, avoiding transmission over long distances. What will contribute considerably to the extension of the life of the entire network. On the other hand, reducing the sample size would increase the variance of prediction. This is a sample design problem in which it is necessary to determine a subset of sensor nodes, that provide estimates with minimal variability. In this paper, we present two algorithms that seek to choose a subsample of sensor nodes that provide minimal variability in prediction process. Furthermore, the performance of the proposed algorithms are compared empirically using Monte Carlo trials.

Keywords: sensor node; subsample; design; prediction.