
Problem 3

Host By: Faculty of IIT Mandi

Preamble to the Problem:

Heard about Internet of Things (IoT), an emerging topic now-a-days, To go wirelessly by using the technology embedded with software and hardware into it. And one of the problem that can be resolved by IoT is data collection, data which is so important and useful part of any application but also difficult to handle it, a lot of resources are consumed for preserving data. So let's embed this problem with IoT.

Problem Statement:

You have to come-up with a Data-mule data collection system which is able to resolve the problem of data handling with some specific constraints to be followed as defined below.

Data-mule for sensor data collection: A data-mule is a mobile device that collects data from a sensor node (by forming a wireless connection) once it is within a certain range of a sensor node. A sensor node is an embedded device that senses the surrounding environment using the sensors attached to it and transmits the data to similar devices or a base station (a data-mule in this case) over a wireless medium. The sensor node for this scenario is also capable of storing the sensed data in a small memory chip embedded on the device. It uses simple data compression schemes to ensure efficient utilization of available memory. However, when the memory is full, it will delete the least recent data to store the present data (i.e., present data is more valuable than past data). The data-mule is familiar with this data compression scheme and every time it visits the sensor node, it not only retrieves the data but also tries to figure out what amount of data was lost. Design an intelligent data-mule that finds the optimal interval between two consecutive visits such that the loss of the past data and the number of trips both are reduced. Note that once the data is retrieved, the node can remove all the data from its memory and start storing new data.

Testing:

For testing, it can be verified by you only on your mobile devices.

General Rules:

1. It will be an onsite event.
2. You have to present a working prototype of problem statement.
3. Documentation and video of your model should be mailed to gauravkr.ex12@gmail.com prior to 5th April 2018. Prefer drive links for videos.
4. Decision of the judges will be final.
5. Teams will be judged on the basis of innovation, design, social impact, working condition, reliability.

Team Specifications and Eligibility:

1. Each team can have at most 5 members, individual participation is allowed.
2. Students from different educational institutes can form a team.
3. All students with a valid identity card of their respective educational institutes are eligible to participate.

Prizes: Chance to have an internship with the professors in IIT

Registration: Rs.100

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