WSNs, ZigBee, and Trajectory

Project 1 : Independent  
Data mining project

Please write a technical paper for the following :

What is Data Mining?  
Problem statement and descriptions

Architectures, designs, algorithms for DM

Implementation, particularly, for network traffic

Results and conclusions

Note: If you can implement DM

6 Pages single spaced

Weds by 12pm 1/18 Y Drive  
Thursday by 10am Hard Copy

Report : LnFn\_Project 1 on Y drive and hard copy

Paper should have :

-Cover page  
-Table of Contents  
-Intro

-Sections

-Conclusions

Cover page, TOC, Intro, couple of sections, conclusions, bibliography,   
  
6 Pages not including cover page (single line)

25 PTS

WSN Architecture:

Has a large number of miniature battery-powered sensor devices scattered over an area in an ad hoc network

Wireless sensors gather data from the environment and route that data to a central processing node, called sink

Sensors are battery powered and have limited processing and memory resources

Sink node has more energy resources (battery or main power support)

Sink node collects data from the sensors, initiates the network formation, route management, address assignment, and serving as a gateway node between outside users of the system and the network

We have multiple sending nodes and one receiving node (Sink) : many-to-one network topology

Sensors use multi-hop forwarding (routing) to send data to the Sink

That is, data is passed from the source node to the Sink through intermediate sensors

In WSN, all the nodes use the same fixed radio range regardless of their location and distance from the Sink

The radio range is short – comm between immediate topological neighbors only

Energy conservation is the most important parameter in the design and operations of WSNs

Problems with this type of routing: Funneling effect and Hot-spot problem

-Funneling Effect:

Single sink/ multi-hop many-to-one WSN: The nodes in the vicinity of the static sink are required to “Funnel” (Forward) data behalf of the other, more distant nodes