

FINAL YEAR PROJECT

Energy Consumption Monitoring and Controlling System Using WSN

Group Members:

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Introduction:

IBA Karachi is one of the most prestigious business schools in Pakistan. Along with the provision of quality education to its students the school comes across many managerial challenges, among these issues there is one issue which needs prime attention of the management and that is the problem of unnecessary usage of energy resources. IBA Karachi is paying millions of rupees per month to electricity provider. We, as students of IBA-FCS have come up with a solution to address this problem and to minimize the amount of electricity bills by using the technology of wireless sensor network to monitor the usage of electricity consumption and to reduce the consumption of useless energy.

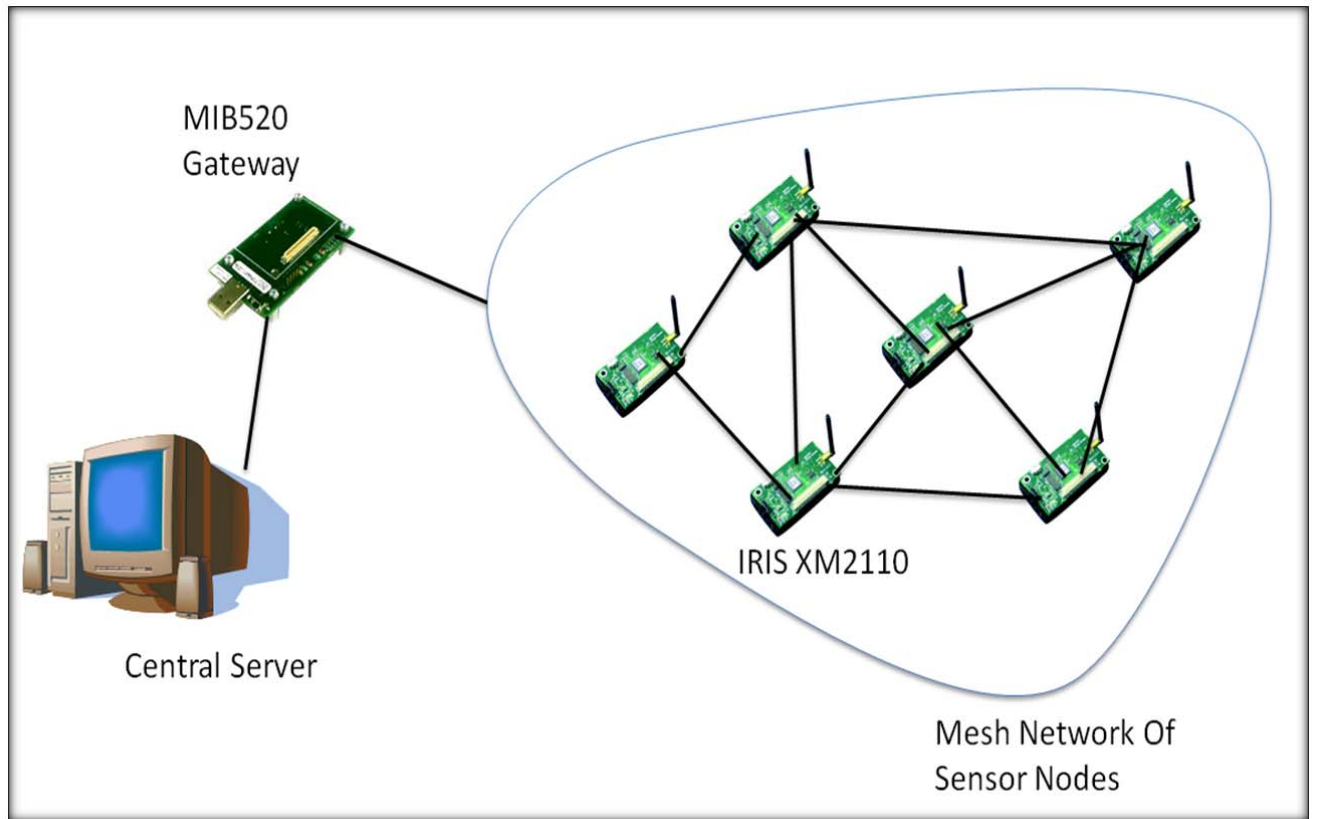
We propose to make a system which will efficiently monitor the usage of energy resources in classrooms, faculty offices and labs within different buildings of IBA. The system will be using the technology of wireless sensor networks and plus designing a backend software which will analyze the data from the sensors and will show results accordingly on a web panel.

This research cum practical project focuses on the monitoring of useless energy consumption at IBA. This will be done by gathering data of two environment variables light and temperature from classrooms, faculty offices and labs. Using the technology of wireless sensor networks a network of sensor nodes will be deployed in the whole FCS building at IBA to get the variables' reading from environment using sensor nodes. Moreover, these sensor nodes are located at different places and sends data to a central gateway which is connected to a local database, and using that data our system will be monitoring the usage of electrical resources of the rooms and will be displayed on a web panel, accessible to all.

Initially the sensors will be deployed only in the FCS building of IBA and the primary focus would be on analyzing the usage of electrical resources in class rooms. There are some limitations of our approach which we have mentioned in later sections.

There are many such solutions available but there isn't any system which caters to the need of the local market. So this will be the first of its kind solution.

Project's Picture:



Appendix:

- **Appendix 5: Work Distribution:**

1. Noman Mansorr Chandna is working on the development of front-end side for our web monitoring panel and has also been doing documentation of our project.
2. Muhammad Aamir and Muhammad Hadir both are working on back-end logic and development of the web panel also they have worked on setting up and configuring the network of sensor nodes to obtain data from rooms.

- **Appendix 6: Project Timeline:**

Energy Consumption Monitoring and Controlling System	
DATE	DESCRIPTION
02 – 10 - 2013	Understanding the working of sensors.
15 – 10 - 2013	Acquisition of data from the sensors.
22 – 10 - 2013	1st Progress Report
05 – 11 - 2013	Manual Analysis of Data.
20 – 11 - 2013	Database Design for the web panel.
23 – 11 - 2013	Started work on decision making algorithm.
07 – 12 - 2013	2nd Progress report
25 – 12 - 2013	Started working on Web Panel
26 – 02 - 2014	Installation of Sensor Nodes Throughout FCS Building.
01 – 03 - 2014	Presentations of FYP-1.
20 – 03 – 2014	Worked on making connection to live database.
22 – 03 – 2014	Reconfigured the environment for data acquisition from sensors on a new machine.
26 – 03 – 2014	Redeployment of sensors on low power mode.
04 – 03 – 2014	Acquisition of live data in web-panel code.