

# **FINAL YEAR PROJECT REPORT**

## **(Implementation of Xbee series2 on WSN)**



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# **(Implementation of Xbee series2 on WSN)**

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Department of Electrical Engineering, University of Management and  
Technology

In partial fulfillment of the requirements for the degree of  
Bachelor of Science  
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## **Abstract**

In our project we will provide the basis for communication using Xbee series 2 on WSN (Wireless Sensor Network) using sensor nodes for sensors and Zigbee as a parameter of communication between these nodes. The amazing thing about our project is the range to which Xbee's communicate with each other. With WSN's special and wide range of industrial and domestic uses this project can give innovations to engineers all over the world.

## Dedication

سُبْحَانَ الَّذِي أَسْرَى بِعَبْدِهِ، لَيْلًا مِنَ الْمَسْجِدِ  
الْحَرَامِ إِلَى الْمَسْجِدِ الْأَقْصَا الَّذِي بَنَيْنَا حَوْلَهُ،  
لِنُرِيَهُ مِنْ آيَاتِنَا إِنَّهُ هُوَ السَّمِيعُ الْبَصِيرُ ﴿١٠١﴾

1. Glorified (and Exalted) be He (Allâh)  
[above all that (evil) they associate with Him]  
<sup>[1]</sup> Who took His slave (Muhammad صلى الله عليه وسلم) for a journey by night from *Al-Masjid-al-Harâm* (at Makkah) to *Al-Masjid-al-Aqsâ* (in Jerusalem), the neighbourhood whereof We have blessed, in order that We might show him (Muhammad صلى الله عليه وسلم) of Our *Ayât* (proofs, evidences, lessons, signs, etc.). Verily, He is the All-Hearer, the All-Seer<sup>[2]</sup>.

Indeed Allah is the perfect communication engineer. This project is dedicated to almighty Allah to our beloved parents, dooper brothers and loving sisters and to all friends whose motivation and prayers were with us during project implementation and after completion as well.

## Acknowledgements

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We would like to express our gratitude to the University of Management and technology for letting us to be a part of it for 4 years and the facility and their keen support provided for the project. We also thank this lovely land of Pakistan which wants us badly as engineers and sons. InshAllah we will try our best to pay back our country our best as engineers.

Finally we would like to thank our project advisor Ms.Hareem Khan and Mr.NaumanShahid, as they helped us in making this model of Xbee's communicating with each other. They guided us in a very informative and descriptive way by assigning us different task step by step. We are very thankful to them for their support and guidance.

(Signed)

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# **Chapter I. Introduction**

## **1.1 Background**

Due to the rising demand of automation in industries and domestic purposes there was a need for long range sensor networks which can communicate with each other efficiently and effectively for both domestic and industrial needs like working women need to monitor their babies at work or at home. On other side a boiler working in an industry needs to be monitored continuously at the rate of per second almost.

## **1.2 Purpose**

The purpose of WSN is of very wide range including it's industrial and defense applications. However many WSNs are working on the radio frequency we focused in this project on the coverage range of our sensor network that's why our advisor gave us idea to use Xbee series2 which has amazingly a large range of communication coverage.

## **1.3 Introduction**

WSN is the best replacement of wired sensor networks because of less hardware used as cables, connectors etc. As an example, A whole hospital can be automated using WSN installed on every bed of patient taking vital signs of patients using sensors, in case of any emergency relative doctor can also be prompted using this technique.

### **1.3.1 Extra Feature**

If there is any problem in the whole network such as a node has stopped working the receiving node attached to the end station will stop giving output telling the administrator of some problem in the network. After removal of problem whole network will start working properly.

## **1.4 Applications**

As WSN working on Xbee is a unique idea it has vast range of applications. As discussed earlier the example of hospital, automation of houses and industries it's most important feature/application is in defense field discussed later.