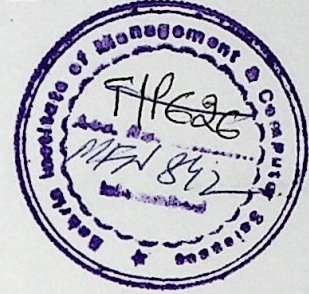


**DATA MATRIX BARCODE  
CONROL**

by

**Farrukh Ghaffar**



**Supervised  
by**

**Mrs. Saima Jawad**

A report is submitted to the department of Computer Sciences,  
Bahria Institute of Management and Computer Sciences, Islamabad.

In partial fulfillment of requirement for the degree of BCS.

---

**Department of Computer Sciences**  
Bahria Institute of Management and Computer Sciences, Islamabad  
University of Peshawar, Peshawar

**This little work of mine is dedicated to my family, teachers  
and friends...**

# Acknowledgments

First of all, I thank God who made this possible for me to work in such an advanced and challenging project.

Secondly I must acknowledge the ever consistent support of Senior Manager Elixir technologies Mr M.Tauheed, who took a personal interest in this project and who first of all trusted us for this valuable work for the organization and then provided the sponsorship for buying the standard specifications from AIM international to provide all the resources for the project. Without his support this project was not practical.

I am thankful to my teachers who brought me here where I can think of doing something and to my friends for their willingness to help me out whenever I needed them.

I am thankful to Dr. Sarmud Abbasi (Quaid-e-Azam university) and to Dr. Khalid Saifullah (Quaid-e-Azam university) for their technical support in this project.

This project was a team work and we were a team of two. Me and Haroon. I acknowledge his temperament and his willingness to work in a team because not much people have this talent.

Last but not the least, I am thankful to my family, without their encouragement, things would have been a lot more difficult.

**Farrukh Ghaffar**

## Project In Brief

**Project Name:** Data Matrix Barcode Control

**Developed By:** Farrukh Ghaffar

**Supervised By:** Mrs. Saima Jawad

**Start Date:** June 15<sup>th</sup>, 01

**End Date:** August 27<sup>th</sup>, 01

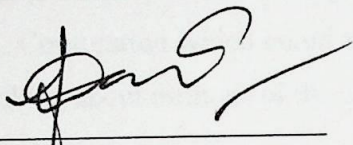
**Developed For:** Elixir Technologies corporation

**Degree:** BCS (Hons)

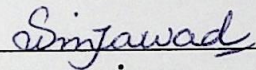
**Institute Name:** Bahria Institute of Management  
and Computer Sciences.

# Certificate

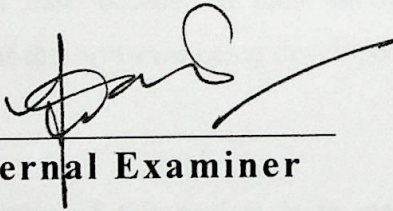
We accept the work contained in this report as a confirming to the required standards for the partial fulfillments of the degree of BCS (Hons).



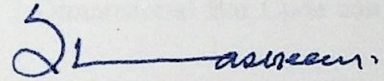
**Head of Department**



**Supervisor**



**Internal Examiner**



**External Examiner**

## ABSTRACT

Bar Codes have proved themselves as the most efficient, cheapest and the only reliable choice when it comes to AIDC (automatic identification and data collection). For the last few decades Barcode industry has come a long way from just identifying an object to now when we can encode more than three thousand characters into 1-2 square inches image. Reliability is guaranteed. Efficiency is main reason bar codes are brought into play as speed of business is multiplied. Corporation which could not make more than a hundred thousand transactions a day are now talking about millions of them a day. How? Thanks to bar codes.

The Barcodes which could only identify items are 1-Dimensional barcodes and those which can encode large amount of data are 2-Dimensional barcodes. 2-Dimensional barcodes now enjoy a large user base because of their enormous benefits as described in INTRODUCTION. The purpose of this software being developed is to take all the benefits 2-Dimensional Bar Code can provide.

The objective of this project is to make a commercial product named as **DATAMATRIX Barcode Control** in the form of an Active-X control which will generate the most reliable barcode called **DATA MATRIX**. This Barcode can encode up to 3000 characters and has many schemes to compress different types of data. Active-X implementation will enable any client to use this software.

If we describe the project in shortest words, Data from user is given as input to the software which is then compressed and algorithms are applied to ensure the recovery from error, which enables to recover to some predetermined user selectable percentage. The data is then represented as an image in some predetermined pattern by following the international standards so that any 2-D Bar Code reader can retrieve the data out of image. This way this software provides a perfect solution of the problem faced by large scale manufacturing industry, i.e. AIDC (automatic identification and data collection).