**Table of Contents**

**Chapter Title Page No.**

I Introduction

1.1 About Programmer’s Keyboard? 1

1.2 Embedded Application 1

1.2.1 History 1

1.2.2Characteristics 2

1.2.3 Processor in Embedded System 2

1.3 Firmware 2

1.4 Device Drive Software 3

1.5 Purpose of the Project 4

1.6 Benefits of Project 4

II Literature Review 5

2.1 Computer Keyboard 5

2.1.1 History 5

2.1.2 Layout 5

2.1.3 Key Types 6

2.1.4 Technologies 7

2.1.5 Working of Keyboard 9

2.2 Serial Communication 10

III Problem Identification 11

3.1 Determining the Problem 11

3.1.1 Monitoring Keyboard &

Retrieving the Scan code 11

3.1.2 Logic Circuit of Keyboard 11

3.1.3 Plug-n-Play Interface 12

3.1.4 Keyboard Fabrication 12

IV Methodology & Working 13

4.1 Proposed Method 13

4.2 Hardware 13

4.2.1 Schematic & Layouts 13

4.3 Software 23

V Results & Discussions 35

VI Conclusion & Scope of Further Work 39

6.1 Conclusion 39 Bibliography

**Bibliography**

1. The 8051 Microcontroller And Embedded Systems Using Assembly And C, 2/E ISBN: 8131710262, 9788131710265
2. <http://pcbheaven.com/wikipages/How_Key_Matrices_Works/>
3. <http://www.learningaboutelectronics.com/Articles/How-does-a-matrix-keyboard-scanning-algorithm-work>
4. <http://www.engineersgarage.com/tutorials/how-to-make-a-pcb-at-home>
5. <http://www.ingeniumblog.net/2010/06/20-best-pcb-making-techniques/>
6. <http://www.embeddedmarket.com>
7. <http://www.onlinetps.com>
8. <http://vishaworld.com>
9. <http://www.google.co.in/url?sa=t&rct=j&q=p89v51rd2&source=web&cd=1&cad=rja&sqi=2&ved=0CC4QFjAA&url=http%3A%2F%2Fwww.keil.com%2Fdd%2Fdocs%2Fdatashts%2Fphilips%2Fp89v51rd2.pdf&ei=LAZCUYBdw9StB4LzgeAL&usg=AFQjCNEyUhNb1OOWxT2R1o1W5mhlQatc-A&bvm=bv.43287494,d.bmk>
10. <http://www.flashmagictool.com/>
11. <http://www.esacademy.com/blog/category/flashmagic/>
12. <http://www.google.co.in/url?sa=t&rct=j&q=ft232rl&source=web&cd=1&cad=rja&sqi=2&ved=0CC4QFjAA&url=http%3A%2F%2Fwww.ftdichip.com%2FProducts%2FICs%2FFT232R.htm&ei=agZCUd7XC5CsrAfmj4GIDg&usg=AFQjCNGpVGg1DjvkQO3rhqGOpB-n6jA83A&bvm=bv.43287494,d.bmk>
13. <http://www.google.co.in/url?sa=t&rct=j&q=ft232rl&source=web&cd=2&cad=rja&sqi=2&ved=0CDMQFjAB&url=http%3A%2F%2Fwww.ftdichip.com%2FDocuments%2FDataSheets%2FICs%2FDS_FT232R.pdf&ei=agZCUd7XC5CsrAfmj4GIDg&usg=AFQjCNGami1T1YXLF1U9kCK2hDTudVhVnQ&bvm=bv.43287494,d.bmk>

Above are some links which are our source of information and based on which we have developed the ***Programmer’s Keyboard*** project.