



## **FINAL YEAR PROJECT REPORT**

# **GSM BASED SECURITY MONITORING SYSTEM FOR BUKC**

**In fulfillment of the requirement  
For degree of  
BEE (Electronics)**

**By**

**MUHAMMAD ASIM RIAZ**

**35914 BEE(ELECTRONICS)**

**HARIS ALI**

**35454 BEE(ELECTRONICS)**

**RABIL MUSTAFA**

**35404 BEE (ELECTRONICS)**

**SUPERVISED**

**BY**

**ENGR.WAJID ALI KHAN**

**BAHRIA UNIVERSITY (KARACHI CAMPUS)**

**2013-2017**

COMPUTER BASED SECURITY SYSTEM FOR BARRICA  
UNIVERSITY (KARACHI CAMPUS)

## ACKNOWLEDGEMENTS

We would like to thank everyone who had contributed to the successful completion of this project. We would like to express my gratitude to my research supervisor, ENGR.WAJID ALI KHAN for his invaluable advice, guidance and his enormous patience throughout the development of the research.

In addition, We would also like to express my gratitude to our loving parent and friends who had helped and given me encouragement.

## **GSM BASED SECURITY MONITORING SYSTEM FOR BAHRIA UNIVERSITY (KARACHI CAMPUS)**

### **ABSTRACT**

The objective of this project is to secure institutions of our country, provide complete surveillance to the institutions and provide secure environment to the students who study in these institutions. This report explores different techniques used for the surveillance of the institutions. Different stages involving Alarm system, messages will be sent to desired security agency, shutdown of light on interference, closing of door, taking pictures of the interfered region will be studied and discussed.

This project uses the Arduino for controlling of sensors and controlling of the other security component which will be turn on after any interference. The main advantage of using this project is to provide complete surveillance and it will reduce human work in surveillance and security of institutions. Different techniques are used to make foolproof surveillance like camera's will take pictures at same time, After trials and errors, a suitable security which have many layers to alert security agencies who can save students in any alarming situation .

The system first proceeds with PIR sensors, if any object is detected in range of PIR sensor, Alarm system will be activated, and a message will be sent through GSM module to desired numbers and at the same moment lights will be cut off inside institution, and all door will be closed at the same moment. Through this whole institution will be secure and security agencies will take action against those who interfere in institution. Recommendations for future development and conclusions are also included in the report.

## TABLE OF CONTENTS

<b>DECLARATION</b>		<b>ii</b>
<b>APPROVAL FOR SUBMISSION</b>		<b>iii</b>
<b>ACKNOWLEDGEMENTS</b>		<b>vi</b>
<b>ABSTRACT</b>		<b>vii</b>
<b>TABLE OF CONTENTS</b>		<b>viii</b>
<b>LIST OF FIGURES</b>		<b>xi</b>
<b>LIST OF SYMBOLS / ABBREVIATIONS</b>		<b>xii</b>
<b>LIST OF APPENDICES</b>		<b>xiii</b>
<b>CHAPTER</b>		
<b>1</b>	<b>INTRODUCTION</b>	<b>1</b>
	1.1 Background	1
	1.2 Problem Statements	2
	1.3 Aims and Objectives	3
	1.4 Scope of Project	4
<b>2</b>	<b>LITERATURE REVIEW</b>	<b>6</b>
	2.1 Introduction	6
	2.2 Survey	7
	2.3 Selection of Sensor	7
	2.3.1 PIR SENSOR	7
	2.3.2 IIR Sensor	9
	2.3.3 Conclusion	10
	2.4 Micro Controller	10

2.4	Micro Controller	10
2.4.1	Arduino	11
2.4.2	Micro Controller 8051	12
2.4.3	Conclusion	13
<b>3</b>	<b>DESIGN AND METHODOLOGY</b>	<b>14</b>
3.1	Component Required 1	14
3.2	GSM MODULE A900	15
3.2.1	Features	16
3.2.2	Applications	16
3.2.3	Schematic	19
3.3	PRINTED CIRCUIT BOARD(PCB)	21
3.4	Alaram	21
3.5	PIR Sensor	22
3.5.1	Stats Of PIR Sensor	25
3.5.2	Data Sheet	25
3.5.3	How PIR Works	25
3.5.4	LENSES	27
3.6	RASPBerry PI 3	30
3.6.1	RASPBerry PI3 In Our Project	32
3.6.2	Arduino In Rasperry PI	33
3.6.3	Reset Button	34
3.6.4	Power Led Indicator	34
3.6.5	TX RX Led	34
3.6.6	Main IC	35
3.6.7	Voltage Regulator	35
3.6.8	Arduino Mega	36
3.7	Method	36
3.8	Design	36
<b>4</b>	<b>IMPLENTATION</b>	<b>37</b>
4.1	Connecting I/O s with Arduino	37
4.2	Connecting Rasperry with Arduino	38

<b>5</b>	<b>RESULTS AND DISCUSSIONS</b>	<b>39</b>
5.1	Result	39

## LIST OF FIGURES

<b>6</b>	<b>CONCLUSION AND RECOMMENDATIONS</b>	<b>41</b>
6.1	Future Scope	41
6.2	Different layers of security	41
6.3	Conclusion	43

## REFERENCES

44

## APPENDICES

45

Figure 3.1.1	PIR SENSOR	18
Figure 3.1.2	PIR SENSOR	18
Figure 3.1.3	PIR SENSOR	18
Figure 3.1.4	PIR SENSOR	18
Figure 3.1.5	PIR SENSOR	18
Figure 3.1.6	PIR SENSOR	18
Figure 3.1.7	PIR SENSOR	18
Figure 3.1.8	PIR SENSOR	18
Figure 3.1.9	PIR SENSOR	18
Figure 3.1.10	PIR SENSOR	18
Figure 3.1.11	PIR SENSOR	18
Figure 3.1.12	PIR SENSOR	18
Figure 3.1.13	PIR SENSOR	18
Figure 3.1.14	PIR SENSOR	18
Figure 3.1.15	PIR SENSOR	18
Figure 3.1.16	PIR SENSOR	18
Figure 3.1.17	PIR SENSOR	18
Figure 3.1.18	PIR SENSOR	18
Figure 3.1.19	PIR SENSOR	18
Figure 3.1.20	PIR SENSOR	18
Figure 3.1.21	PIR SENSOR	18
Figure 3.1.22	PIR SENSOR	18
Figure 3.1.23	PIR SENSOR	18
Figure 3.1.24	PIR SENSOR	18
Figure 3.1.25	PIR SENSOR	18
Figure 3.1.26	PIR SENSOR	18
Figure 3.1.27	PIR SENSOR	18
Figure 3.1.28	PIR SENSOR	18
Figure 3.1.29	PIR SENSOR	18
Figure 3.1.30	PIR SENSOR	18
Figure 3.1.31	PIR SENSOR	18
Figure 3.1.32	PIR SENSOR	18
Figure 3.1.33	PIR SENSOR	18
Figure 3.1.34	PIR SENSOR	18
Figure 3.1.35	PIR SENSOR	18
Figure 3.1.36	PIR SENSOR	18
Figure 3.1.37	PIR SENSOR	18
Figure 3.1.38	PIR SENSOR	18
Figure 3.1.39	PIR SENSOR	18
Figure 3.1.40	PIR SENSOR	18
Figure 3.1.41	PIR SENSOR	18
Figure 3.1.42	PIR SENSOR	18
Figure 3.1.43	PIR SENSOR	18
Figure 3.1.44	PIR SENSOR	18
Figure 3.1.45	PIR SENSOR	18
Figure 3.1.46	PIR SENSOR	18
Figure 3.1.47	PIR SENSOR	18
Figure 3.1.48	PIR SENSOR	18
Figure 3.1.49	PIR SENSOR	18
Figure 3.1.50	PIR SENSOR	18
Figure 3.1.51	PIR SENSOR	18
Figure 3.1.52	PIR SENSOR	18
Figure 3.1.53	PIR SENSOR	18
Figure 3.1.54	PIR SENSOR	18
Figure 3.1.55	PIR SENSOR	18
Figure 3.1.56	PIR SENSOR	18
Figure 3.1.57	PIR SENSOR	18
Figure 3.1.58	PIR SENSOR	18
Figure 3.1.59	PIR SENSOR	18
Figure 3.1.60	PIR SENSOR	18
Figure 3.1.61	PIR SENSOR	18
Figure 3.1.62	PIR SENSOR	18
Figure 3.1.63	PIR SENSOR	18
Figure 3.1.64	PIR SENSOR	18
Figure 3.1.65	PIR SENSOR	18
Figure 3.1.66	PIR SENSOR	18
Figure 3.1.67	PIR SENSOR	18
Figure 3.1.68	PIR SENSOR	18
Figure 3.1.69	PIR SENSOR	18
Figure 3.1.70	PIR SENSOR	18
Figure 3.1.71	PIR SENSOR	18
Figure 3.1.72	PIR SENSOR	18
Figure 3.1.73	PIR SENSOR	18
Figure 3.1.74	PIR SENSOR	18
Figure 3.1.75	PIR SENSOR	18
Figure 3.1.76	PIR SENSOR	18
Figure 3.1.77	PIR SENSOR	18
Figure 3.1.78	PIR SENSOR	18
Figure 3.1.79	PIR SENSOR	18
Figure 3.1.80	PIR SENSOR	18
Figure 3.1.81	PIR SENSOR	18
Figure 3.1.82	PIR SENSOR	18
Figure 3.1.83	PIR SENSOR	18
Figure 3.1.84	PIR SENSOR	18
Figure 3.1.85	PIR SENSOR	18
Figure 3.1.86	PIR SENSOR	18
Figure 3.1.87	PIR SENSOR	18
Figure 3.1.88	PIR SENSOR	18
Figure 3.1.89	PIR SENSOR	18
Figure 3.1.90	PIR SENSOR	18
Figure 3.1.91	PIR SENSOR	18
Figure 3.1.92	PIR SENSOR	18
Figure 3.1.93	PIR SENSOR	18
Figure 3.1.94	PIR SENSOR	18
Figure 3.1.95	PIR SENSOR	18
Figure 3.1.96	PIR SENSOR	18
Figure 3.1.97	PIR SENSOR	18
Figure 3.1.98	PIR SENSOR	18
Figure 3.1.99	PIR SENSOR	18
Figure 3.1.100	PIR SENSOR	18