

ODOR LOCALIZATION USING A MOBILE ROBOT

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SWISS GERMAN UNIVERSITY

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STATEMENT BY THE AUTHOR

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ABSTRACT**ODOR LOCALIZATION USING A MOBILE ROBOT**

By

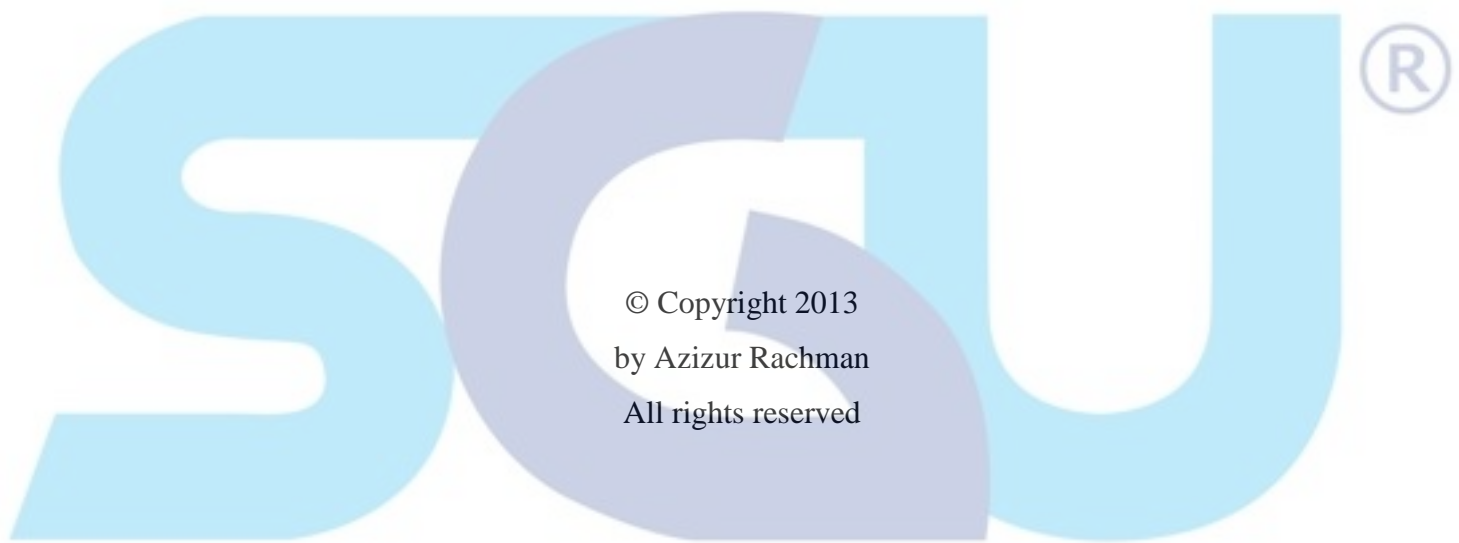
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When a potentially hazardous gas leakage is present in an environment, it may be dangerous for humans to localize the source of leakage. Therefore, the objective of this thesis work is to develop a mobile robot capable of localizing odor. To simulate an odor source, ethanol is used. Ethanol gas sensor is utilized to detect ethanol vapor. Analysis of ethanol gas sensor is described in detail in order to find the correct configuration and strategy in locating odor source. The mobile robot would proceed towards the highest concentration of ethanol vapor. The odor sensor is tin oxide type, which is high in response but the drawback was the recovery time. Localization method used is *E.coli* algorithm. The fact that the odor sensor is not equipped with wind sensor, it faced some challenges to detect odor source efficiently. Recommendation of further work would be to add fans that would aid in lowering the recovery time. In addition to that, attaching wind sensors would increase its successive rate in localizing odor and other localization strategies could be implemented.

Keyword: odor, localization, mobile robot, ethanol, E. coli.



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DEDICATION

This thesis is dedicated to Allah SWT for His never-ending blessings and to my family for their never-ending love and support.



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TABLE OF CONTENTS

ODOR LOCALIZATION USING A MOBILE ROBOT	1
STATEMENT BY THE AUTHOR	2
ABSTRACT	3
DEDICATION	5
ACKNOWLEDGEMENTS	6
TABLE OF CONTENTS	7
LIST OF FIGURES	11
LIST OF TABLES	14
CHAPTER 1 - INTRODUCTION	15
1.1 Background	15
1.2 Thesis Purpose	15
1.3 Thesis Scope	16
1.4 Thesis Limitation	16
1.5 Thesis Organization	18
CHAPTER 2 - LITERATURE REVIEW	19
2.1 Introduction	19
2.2 Odor Detection by Mobile Robots (R. Andrew Russell)	20
2.2.1 Human Chemical Sense	20
2.2.2 The Sense of Smell	21
2.3 Biological Chemotaxis	22
2.3.1 Waterborne Chemical Plume	23
2.4 Odor Sensor	25
2.4.1 Tin Oxide Sensors	25

2.4.2	Conducting Polymer Sensors	26
2.4.3	Quartz crystal microbalance	26
2.4.4	Electroantennogram	27
2.5	Good Experimental Methodologies for Mobile Robot Olfaction (Marques, Lino, Institute of Systems and Robotics University of Coimbra, Portugal)	28
2.6	Learning to locate an Odor Source with a Mobile Robot (Tom Duckett, Mikael Axelsson, and Alessandro Saffiotti)	31
2.7	A Stereo Electronic Nose for a Mobile Robot Inspection Robot (Lilienthal, Achim, , University of Tübingen, Germany and Duckett, Tom, Department of Technology Örebro University	32
2.8	<i>Escherichia coli</i> (<i>E. coli</i>)	34
2.8.1	<i>E. coli</i> algorithm.....	34
2.9	Concluding Remark	35
3.1	Introduction.....	36
3.2	System Hierarchy	36
3.3	Mechanical Design.....	38
3.3.1	Mobile Robot Platform	38
3.3.2	Test Chamber	40
3.3.3	Battery Holder.....	40
3.3.4	Ethanol Sensor Holder	41
3.3.5	Infrared Distance Sensor Holder.....	41
3.3.6	Control Base Plate.....	42
3.4	Electrical Design.....	42
3.4.1	Electrical Wiring Diagram.....	43
3.4.2	Encoder	43

3.4.3	Motor Driver (H-Bridge)	45
3.4.4	Ethanol Sensor	47
3.4.4.1	Tin Oxide Sensor	47
3.4.4.2	Ethanol Sensor Liquid Concentration Test.....	49
3.4.4.3	Ethanol Sensor Distance Test	50
3.4.4.4	Ethanol Sensor Vapor Test	51
3.4.4.5	Ethanol Sensor Signal Conditioning.....	52
3.4.5	Infrared Distance Sensor	58
3.4.5.1	Infrared Distance Sensor Test.....	59
3.4.6	Microcontroller	60
3.5	Programming Design	61
3.5.1	Main Programming Design	62
3.5.2	Infrared Distance Sensor Flowchart.....	63
3.5.3	Backward Function Flowchart.....	64
3.5.4	Forward Function Flowchart.....	64
3.5.5	Rotate Random Function Flowchart	65
3.5.6	Forward Random Function Flowchart.....	66
3.5.7	Search Function Flowchart	66
CHAPTER 4 – RESULT AND DISCUSSION		68
4.1	Introduction.....	68
4.2	Final Mobile Robot Result.....	68
4.3	Test Chamber Design Result.....	69
4.4	Ethanol Sensor Test Result	69
4.4.1	Ethanol Sensor Liquid Concentration Test Result.....	70
4.4.2	Ethanol Sensor Distance Test	72

4.4.3	Ethanol Sensor Vapor Test	78
4.5	Encoder Test	80
4.6	Infrared Distance Sensor Test Results	81
CHAPTER 5 – CONCLUSION AND RECOMMENDATION		84
5.1	Conclusion	84
5.2	Recommendation and future development	84
GLOSSARY		85
REFERENCES		86
APPENDICES		87
Appendix A. Technical Drawing		87
Appendix B. Datasheet		98
Appendix C. Source Code.....		116
Appendix D. Bill of Materials		126
CURRICULLUM VITAE		127



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