

**POLITEKNIK SULTAN SALAHUDDIN ABDUL AZIZ SHAH**

**ZIKR LAMP FOR CHILDREN**

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**JABATAN KEJURUTERAAN ELEKTRIK**

**SESI 2 2021/2022**

**POLITEKNIK**

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NURUL ATHIQAH BINTI WAHYUDI

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This report submitted to the Electrical Engineering Department in fulfillment of the requirement for a Diploma in Electrical Engineering

**JABATAN KEJURUTERAAN ELEKTRIK**

**SESI 2 2021/2022**

## CONFIRMATION OF THE PROJECT

The project report titled "Zikr lamp for children" has been submitted, reviewed and verified as a fulfills the conditions and requirements of the Project Writing as stipulated

Checked by:

Supervisor's name : Puan Zabidah bt Haron

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Verified by:

Project Coordinator name :

Signature of Coordinator :

Date :

“I acknowledge this work is my own work except the excerpts I have already explained to our source”

1. Signature : 

Name : **Nurul Athiqah binti Wahyudi**

Registration Number : **08DEP19F1071**

Date : **10 MARCH 2022**

## DECLARATION OF ORIGINALITY AND OWNERSHIP

TITLE : ZIKR LAMP FOR CHILDREN

SESSION: SESI 2 2021/2022

1. I am Nurul Athiqah Binti Wahyudi (08DEP19F1071) is a final year student of Diploma in Electrical Engineering, Department of Electrical, Politeknik Sultan Salahuddin Abdul Aziz Shah, which is located at Persiaran Usahawan,40140 Shah Alam Selangor Darul Ehsan. (Hereinafter referred to as 'the Polytechnic').
2. I acknowledge that 'The Project above' and the intellectual property therein is the result of our original creation /creations without taking or impersonating any intellectual property from the other parties.
3. agree to release the 'Project' intellectual property to 'The Polytechnics' to meet the requirements for awarding the Diploma in Electrical Engineering to me.

Made and in truth that is recognized by;

a) **Nurul Athiqah Binti Wahyudi**

(Identification card No: - 010708011426)



**Nurul Athiqah Binti Wahyudi**

In front of me, **Puan Zabidah Binti Haron**  
(780613015804)

) ..........

As a project supervisor, on the date:

) **Zabidah Bt Haron**

## **ACKNOWLEDGEMENTS**

I would like to express my sincere gratitude to several individuals and organizations for supporting me throughout my Diploma study. First, I wish to express my sincere gratitude to my supervisor, Puan Zabidah binti Haron, for her enthusiasm, patience, insightful comments, helpful information, practical advice and unceasing ideas that have helped me tremendously at all times in my research and writing of this project. Her immense knowledge, profound experience and professional expertise in Data Quality Control has enabled me to complete this research successfully. Without her support and guidance, this project would not have been possible. I could not have imagined having a better supervisor in my study. I also wish to express my sincere thanks to the Polytechnic Sultan Salahuddin Abdul Aziz Shah for accepting me into the project program. In addition, I am deeply indebted to my lovely parents for providing moral support in terms of money especially when facing this Covid-19. This financial support has enabled me to complete my project in Diploma studies successfully.

## **ABSTRACT**

This study focused on a children's health. Sleeping is a daily routine for most of us, and we do not spend much time thinking about its importance especially for the children. However, with the growing use of technology and lifestyle changes, the younger generation is losing many hours of sleep. Because of habits such as late nights parties and spending too much time on mobile phones/laptop before sleeping, there are rising health concerns in the younger generation. Based on the findings from various studies, it is evident that sleep is even more important for children than adults, and that is when most brain development happens. Poor sleep affects children's behavior and makes them less productive. It can be used to turn ON and OFF the lighting system of the home automatically by detecting the presence of humans. Also, there is no need to worry about electricity bills as the lights get OFF when there is no human and hence one needs to pay the bills as peruse. The main components used in this system are Arduino Uno, PIR, and Relay Module. Out of these components, the operation of the system mainly depends on the PIR sensor which helps in detecting human presence.

## **ABSTRAK**

Kajian ini tertumpu kepada kesihatan kanak-kanak. Tidur adalah rutin harian bagi kebanyakan kita, dan kita tidak menghabiskan banyak masa memikirkan kepentingannya terutama untuk anak-anak. Walau bagaimanapun, dengan penggunaan teknologi dan perubahan gaya hidup yang semakin meningkat, generasi muda kehilangan banyak jam tidur. Disebabkan tabiat seperti pesta larut malam dan terlalu banyak menghabiskan masa dengan telefon bimbit/komputer riba sebelum tidur, kebimbangan kesihatan semakin meningkat dalam kalangan generasi muda. Berdasarkan penemuan daripada pelbagai kajian, terbukti bahawa tidur adalah lebih penting untuk kanak-kanak daripada orang dewasa, dan ketika itulah kebanyakan perkembangan otak berlaku. Tidur yang kurang memberi kesan kepada tingkah laku kanak-kanak dan menjadikan mereka kurang produktif. Ia boleh digunakan untuk menghidupkan dan mematikan sistem pencahayaan rumah secara automatik dengan mengesan kehadiran manusia. Selain itu, tidak perlu risau tentang bil elektrik kerana lampu padam apabila tiada manusia dan oleh itu seseorang perlu membayar bil tersebut dengan teliti. Komponen utama yang digunakan dalam sistem ini ialah Arduino Uno, PIR, dan Modul Geganti. Daripada komponen ini, operasi sistem bergantung terutamanya pada sensor PIR yang membantu dalam mengesan kehadiran manusia.



# TABLE OF CONTENTS

<b>CONFIRMATION OF THE PROJECT</b>	<b>i</b>
<b>DECLARATION OF ORIGINALITY AND OWNERSHIP</b>	<b>iii</b>
<b>ACKNOWLEDGEMENTS</b>	<b>iv</b>
<b>ABSTRACT</b>	<b>v</b>
<b>ABSTRAK</b>	<b>vi</b>
<b>TABLE OF CONTENTS</b>	<b>vii</b>
<b>LIST OF TABLES</b>	<b>ix</b>
<b>LIST OF FIGURES</b>	<b>x</b>
<b>CHAPTER 1</b>	<b>1</b>
<b>1 INTRODUCTION</b>	<b>1</b>
1.1 Introduction	1
1.2 Project Background	2
1.3 Problem Statement	2
1.4 Research Objectives	3
1.5 Scope of Research	3
1.6 Project Significance	3
1.7 Chapter Summary	3
<b>CHAPTER 2</b>	<b>4</b>
<b>2 LITERATURE REVIEW</b>	<b>4</b>
2.1 Introduction	4
2.2 LITERATURE REVIEW TOPIC 1	4
2.3 LITERATURE REVIEW TOPIC 2	<b>Error! Bookmark not defined.</b>
2.4 LITERATURE REVIEW TOPIC 3	<b>Error! Bookmark not defined.</b>
2.5 LITERATURE REVIEW TOPIC 4	<b>Error! Bookmark not defined.</b>
2.6 LITERATURE REVIEW TOPIC 5	<b>Error! Bookmark not defined.</b>
2.7 Chapter Summary	6
<b>CHAPTER 3</b>	<b>12</b>
<b>3 RESEARCH METHODOLOGY</b>	<b>12</b>
3.1 Introduction	12
3.2 Project Design and Overview.	12
3.2.1 Block Diagram of the Project	12
3.2.2 Project Description	13
3.3 Project Hardware	13
3.3.1 Schematic Circuit	14
3.3.2 Description of Main Component	14
3.3.3 Circuit Operation	18
3.4 Project Software	20
3.4.1 Flowchart of the System	20
3.4.2 Description of Flowchart	21

3.5	Prototype Development	<b>Error! Bookmark not defined.</b>
3.5.1	Mechanical Design/Product Layout	
		<b>Error! Book mark not define d.</b>
3.6	Sustainability Element in The Design Concept	23
3.7	Chapter Summary	23
	<b>CHAPTER 4</b>	<b>23</b>
<b>4</b>	<b>RESULTS AND DISCUSSION</b>	<b>24</b>
4.1	Introduction	24
4.2	Results and Analysis	24
4.3	Discussion	25
4.4	Chapter Summary	26
	<b>CHAPTER 5</b>	<b>27</b>
<b>5</b>	<b>CONCLUSION AND RECOMMENDATIONS</b>	<b>27</b>
5.1	Introduction	27
5.2	Conclusion	27
5.3	Suggestion for Future Work	27
5.4	Chapter Summary	27
	<b>CHAPTER 6</b>	<b>28</b>
<b>6</b>	<b>PROJECT MANAGEMENT AND COSTING</b>	<b>28</b>
6.1	Introduction	28
6.2	Gant Chart and Activities of the Project	28
6.3	Milestone	29
6.4	Cost and Budgeting	29
6.5	Chapter Summary	29
	<b>REFERENCES</b>	<b>30</b>
<b>7</b>	<b>APPENDICES</b>	<b>33</b>
	APPENDIX A- DATA SHEET	33
	APPENDIX B- PROGRAMMING	36
	APPENDIX C- PROJECT MANUAL/PRODUCT CATALOGUE	37

## LIST OF TABLES

TABLE	TITLE	PAGE
	Table 2.1: Treatments to Improve Motor Skills in the Market.....	5
	Table 3.1: Sequence of Finger Model Blinking.....	<b>Error! Bookmark not defined.</b>
	Table 3.2: Means and Standard Deviations (In Brackets) Of Strength Scores (In Pounds Force) For Each Hand Of Males. Right Hand. ....	<b>Error! Bookmark not defined.</b>

## LIST OF FIGURES

FIGURE	TITLE	PAGE
Figure 2.1:	Block diagram of open loop and closed loop system	<b>Error! Bookmark not defined.</b>
Figure 3.1:	Flow chart of operation of the system	<b>Error! Bookmark not defined.</b>
Figure 3.2:	Circuit Diagram	<b>Error! Bookmark not defined.</b>
Figure 3.3:	Front view of the project	<b>Error! Bookmark not defined.</b>

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

We are living in the world where everything goes to be automatic from your washing machine to your ceiling fan. The world revolves around the word automation and the ones that are automated are said to be of next generation because they limit the involvement of humans. They are self-sufficient to operate on their own and thereby, saving time and cost by being more efficient than the manual ones. Automatic Room Lighting System is a microcontroller-based project that automatically turn on or off the lights in a room. Electricity, being one of the most important resources, must be utilized carefully. We often forget to switch off lights or fans when we leave a room. By using this system, we can intentionally forget about the lights as the system will automatically take care of them. The digital world we are living in allows us to use different technologies to automatically perform certain tasks. Such automation is very useful in certain areas like energy consumption, reducing human efforts, improving standard of living etc. The project implemented here is one such project where the microcontroller-based system automatically controls the room lights. I have just started the project in my attempt here. The main objective of this project is to implement an auto-intensity control of LED-based on PIR sensor which is interfaced to an Arduino board.

## **1.2 Project Background**

In this section, I will create a sleeping light for children that will turn on when it detects someone approaching it and will emit the sounds of Zikr. It will switch off automatically after 10 minutes. This is because some children have difficulty falling asleep and forget to turn off the lights when they want to sleep. With this automatic light which contains Zikr, the children will be able to sleep easily and will no longer need to turn off the lights because they will turn off on their own hence it will save energy. Hereby, the child's time will be freed up for more beneficial activities, teach children to do more Zikr pray, and read Quranic verses. Other than that, it will assist the child in sleeping more comfortably and soundly. Through repetition, children will easily to remember and memorise Zikr. Without us realising, it also will assist parents who are unable to provide their children with a basic Islamic education.

## **1.3 Problem Statement**

Up to 50% of children will experience a sleep problem. Early identification of sleep problems may prevent negative consequences, such as daytime sleepiness, irritability, behavioral problems, learning difficulties and poor academic performance. If a child is unable to sleep well, usually the child will suffer sleep walking, sleep talking, and confessional arousals.

Other than that, some children always forget to turn off the lights when they want to sleep. Exposure to light during sleep makes it difficult for your brain to achieve deeper sleep. The more shallow or light sleep you get at night, the more your brain oscillations (activity) that allow you to get to deeper stages of sleep are negatively affected. Aside from conditions that directly affect your brain, a lack of deep sleep from light exposure has also been linked to the following side effects.

#### **1.4 Research Objectives**

The main objective of this Project is assisting children in sleeping more easily and comfortably by playing the sound of Zikr and to implement an auto-intensity control of LED-based on PIR sensor which is interfaced to an Arduino board. More specifically the principal objective of this research is to develop a hardware and software that illuminate the room at night and dark.

#### **1.5 Scope of Research**

This Project is focusing on a kid from 1 years to 17 years old

#### **1.6 Project Significance**

This kind of project is not the first time and it is already had a lot of different designs for different uses. This project is focusing on the sensor to detect any movement. In the 1980s, Samuel Bagno advancements in technology brought us the infrared motion sensor. Active infrared sensors work by emitting infrared radiation, detecting differences in temperature between an object and its surroundings. Passive versions of these detectors have no emitters instead, they use sensors to detect the difference in infrared emitted by objects in range.

#### **1.7 Chapter Summary**

In chapter 1, it is consisting of introduction, background research of the project alongside with information that relates to the project “Zikr Lamp for Children”. Research of the project cite with previous projects and able to explain the problem statement, and research objectives and scope. Project significance is cited with previous projects such as PIR Sensor.