



**POLITEKNIK  
SULTAN SALAHUDDIN ABDUL AZIZ SHAH**

**ARDUINO AUTOMATIC GRASS CUTTER**

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**JABATAN KEJURUTERAAN ELEKTRIK**

**NOVEMBER 2021**

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<b>NAME:</b>	<b>REGISTRATION NO :</b>
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This report submitted to the Electrical Engineering Department in fulfillment of the requirement of Diploma in Electrical Engineering

**JABATAN KEJURUTERAAN ELEKTRIK**

**NOVEMBER 2021**

## CONFIRMATION OF THE PROJECT

The project report titled “ARDUINO AUTOMATIC GRASS CUTTER” has been submitted, reviewed and verified as a fulfills the conditions and requirements of the Project Writing as Stipulated.

Checked by:

Supervisor's Name: MASILAH BINTI ATAN

Supervisor's Signature: 

Date: 21/06/2022

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: NUR FIELZAH HAZWANIE BINTI RAIHAN

Registration no.: 08DEU19F2023

Date: ~~17/6/2022~~ 17/06/2022 

## DECLARATION OF ORIGINALITY AND OWNERSHIP

<b>TITLE:</b>	<b>ARDUINO AUTOMATIC GRASS CUTTER</b>
<b>SESSION:</b>	<b>SESI 1 2021/2022</b>

1. I, 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, 40150 Shah Alam, Selangor.
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. I 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) <b>NUR FIELZAH HAZWANIE BINTI RAIHAN</b> (Identification card no.: 08DEU19F2023)	 ..... <b>NUR FIELZAH HAZWANIE BINTI RAIHAN</b>
In front of me, <b>MASILAH BINTI ATAN,</b> As a project supervisor, on the date:	 ..... <b>MASILAH BINTI ATAN</b>

## **ACKNOWLEDGEMENTS**

Alhamdulillah, In the name of Allah the most gracious and the most precious, first and foremost, I would like extend our deepest praise to Allah SWT who given us the patient, strength, determination, obstacle that helping me to think wisely in making a decision and courage to completed this project . Next, we would like to thank the Polytechnic Sultan Salahuddin Abdul Aziz Shah for giving us the opportunity to produce this proposal by providing facilities such as a library to enable me to obtain reference material related to our subject under the Project 1 subject .

On this occasion, I would also like to express our sincere appreciation and gratitude to our lecturer, Puan Masilah Binti Atan for providing me with the guidance and the perfect explanation from the beginning of the our project until the project was completed. Again, thank you to you for giving us the confidence to make this project success.

In addition, many thanks also to our colleagues who worked hard to produce this work and also exchanged ideas to help us complete the course work. Finally, I hope that the work we do will increase our knowledge base and make us more cooperative and responsible.

## **ABSTRACT**

The project is an Arduino Automatic Grass Cutter, where the machine is controlled using a remote control. This machine has 1 blades that will work to mow the grass. Compared to existing machines, users who use existing machines such as “Mechanical Lown Mower”, “Honda gx35 Lawn Machine”, “Black and Decker Grass Trimmer”, they are exposed to scorching sunlight. It can also cause users to quickly feel tired, headaches and blackouts. This automatic grass cuttter is more suitable for use by the People of Disabled (OKU) . Users can also control the machine simply by using the remote control. In addition, users can also do other work while waiting for the grass cutter machine to finish in one direction. This machine can be used in areas measuring 20 feet wide, while 20 feet long. Based on research, it can ease the burden of consumers while reducing health risks that are detrimental to consumers.

**KEYWORD** : Remote control , RF receiver , Arduino uno & Motor driver

## **ABSTRAK**

Projek ini ialah Pemotong Rumput Automatik Arduino, di mana mesin dikawal menggunakan alat kawalan jauh. Mesin ini mempunyai 1 bilah yang akan berfungsi untuk memotong rumput. Berbanding dengan mesin sedia ada, pengguna yang menggunakan mesin sedia ada seperti "Mechanical Lown Mower", "Honda gx35 Lawn Machine", "Black and Decker Grass Trimmer", mereka terdedah kepada cahaya matahari yang terik. Ia juga boleh menyebabkan pengguna cepat berasa letih, sakit kepala dan pitam. Pemotong rumput automatik ini lebih sesuai digunakan oleh Orang Kurang Upaya (OKU). Pengguna juga boleh mengawal mesin hanya dengan menggunakan alat kawalan jauh. Selain itu, pengguna juga boleh melakukan kerja-kerja lain sementara menunggu mesin pemotong rumput selesai dalam satu arah. Mesin ini boleh digunakan di kawasan berukuran 20 kaki lebar, manakala 20 kaki panjang. Berdasarkan kajian, ia dapat meringankan beban pengguna di samping mengurangkan risiko kesihatan yang merugikan pengguna.

**KATA KUNCI** : Alat Kawalan Jauh , RF receiver , Arduino uno & Motor driver

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## **LIST OF ABBREVIATIONS**

PCB – Printed Circuit Board

DC – Direct Current

## **CHAPTER 1**

### **1 INTRODUCTIONS**

#### **1.1 Introduction**

In current days, grass cutter machines are operated by fuel and electrical energy which are costly and requires high maintenance. Hence, in this study, a Arduino Automatic Grass Cutter for grass cutting was designed and fabricated by using locally available materials . Important aspects such as durability, strength, and light weight were taken into design considerations for better performance characteristics . The grass cutter machine was powered by 12VDC rechargeable battery which drives the DC motor up to a rotational speed of 15 RPM. As a result, the generated torque will be transferred to the cutting head mechanism for efficient grass cutting. The entire configuration set up was mounted on a wooden base which attached together with a frame and a set of wheel arrangement. This portable lawn mower can be used to maintain and trim grass in home yards .

## 1.2 Background Research

Arduino automatic grass cutter is controlled by using a remote control. This machine uses 1 blades to cut the grass surface to an even height . Has a battery -powered electric motor, self -contained power. This machine only needs the power of the remote control, arduino uno as well as the motor to move right and left .

To date, grass cutter users use manual grass cutter such as on field tracks . Although this method is manual it has many benefits. Accuracy in the cutting level was observed using the manual cutting method. This work deals with green cuttings (shrubs, grasses, flowers, tree leaves). Arduino automatic grass cutter, has its own design such as providing a higher level of flexible mobility. The goals of this work include to reduce the cost of cutting and also to beautify the environment. The presence of this grass cutter machine can help ease the human burden, especially on the Disabled (OKU) . I plan to upgrade this Arduino automatic grass cutter in a safe way. With this innovation, it not only makes it easier for users to do grass cutting, but it also ensures the safety of users.

## 1.3 Problem Statement

The grass cutter we use today is an Arduino Automatic Grass Cutter that makes it easy for humans . But there are still some weaknesses in the grass . This machine can only work with a width of 20 feet and a length of 20 feet only . This machine uses a remote control and this machine is preferred for the Disabled (OKU) .

Also , the problem we face when using lawns is that the grass cutter we use today will produce noise . This is a bit like interfering with other people's hearing . It can also be categorized as noise pollution . So by using an Arduino Automatic Grass Cutter it will not produce noise that will interfere with the hearing of others .

Then , another problem is that grass cutter nowadays mostly use fuel . The cost of owning a grass cutter using fuel is quite expensive compared to a regular grass cutter . So here we can reduce the cost because the Arduino Automatic Grass Cutter does not use any fuel and it can save money . This is because, not everyone can afford to use an engine grass cutter . This is one of the factors we want to create an Arduino Automatic Grass Cutter to help those on low income .

## **1.4 Research Objective**

The main objective of this Project is to make it easier for the Disabled (OKU) to do some cleaning work.

More specifically the principle objective of this research are:

1. To design an Arduino Automatic Grass Cutter that has a faster starter to turn to on the machine.
2. To implement Arduino Automatic Grass Cutter that do not have any kind of pollution such as noise pollution.
3. To develop an Arduino Automatic Grass Cutter that can be started without using any type of fuel. So the cost of using grass cutter is cheaper.

## **1.5 Scope of Research**

1. This Project is focusing is suitable for use by the Disabled (OKU) .
2. The emphasis is only suitable for home areas that have 20 x 20 square feet .
3. The main controller is using high quality stainless steel blades to keep every cut neat and even .

## **1.6 Project Significance**

Every innovation we create must have its own approach and benefits , so our idea of creating an Arduino Automatic Grass Cutter was a good idea . It can also help the less fortunate because the price is affordable and also benefits consumers . Arduino Automatic Grass Cutter can make it easier for consumers to take it anywhere . It can prevent us from getting injured because this machine can be stored in an existing bag .

## **1.7 Chapter Summary**

In this chapter, studies have been explained about the origins of ideas and inspiration . All of the stated objectives can be achieved through a problem statement. Therefore, with this Arduino automatic grass cutter we can create an innovation that benefits everyone , especially the People with Disabilities (OKU) . Automatic cutting machine is not only useful for users but housewives can also use it to do housework . This is because this grass cutter is portable and not too heavy . Next , the scope of this project describes about the operator of the Arduino automatic grass cutter and the area suitable for this machine . In conclusion , this grass cutter can provide good impact and advantages to users .