



DIPLOMA MECHANICAL ENGINEERING

PROJECT 2

DJJ 40182

FINAL YEAR PROJECT REPORT

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DECLARATION OF AUTHENTICITY AND PROPERTY RIGHTS

AUTOMATIC SHOE BOX WITH UV LIGHT AND DRYER

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2. We acknowledge that the 'Project Above' and the intellectual property contained therein are the result of my original work/invention without taking or copying any intellectual property from other parties.
3. We agree to relinquish ownership of the 'Project' interlock property to 'the Polytechnic' to meet the requirements for the award of a Diploma in Mechanical Engineering to me.

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.....

APPERICATION

This appreciation goes to my supervisor Encik Mohamad Hazwan Bin Mohamed Norli for helping us a lot. We were given this task on August 25, 2022. He also shared a lot of information and gave a moral contribution to me to complete the project.

And many thanks to both of my parents for their constant mental support. This is because we were able to complete this task with the help of those who care about our emotions. Their presence by my side aided me greatly, either directly or indirectly.

Not to mention a million thanks to my pals for sharing their knowledge and assisting us with this endeavor. They assisted us both physically and scientifically. And we are grateful to all who assist us, either directly or indirectly, for their assistance.

ABSTRACT

This project is about Development of Automatic Shoe Rack with Ultraviolet and Dryer Apparatus that can be used to helps people drying shoes. The objectives in this project are to create an easy method to dry a shoe and it can be used in many situations. Besides that, to design and fabricate an apparatus that can help in drying the shoes with simple action. This project involves the process of designing the shoe dryer by considering the functionality, shape, environment fitting, heating element, and the manufacturing cost for people to use it. The material of this design is easy to gain it, because it only using zinc sheet metal as raw material. So that the method joining that can be compatible in assembled this simple shoe dryer is rivet set processes. In assembled the wheel below the product, welding process is suitable because it will heat and melt the origin metal to joining. This project also required analysis to make sure the heating element for drying of the product to ensure the safety for the user indeed of publishing. After all the process had been done, this simple shoe dryer apparatus may help us to understand the fabrication and designing process that involved in this project. With the help of computer (CAD) is used to help plan this project. Analysis was performed to determine the best headrest thickness when the user using it with the effect towards the modal when the different loads are applied on it. All these analyzes were determined using the (CAD) method. This method can create virtual 3-dimensional objects with layer by layer.

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CHAPTER 1 INTRODUCTION

1.1 PROJECT INTRODUCTION

The automatic shoe box with UV light and dryer is designed to make shoe cleaning and maintenance easier and more convenient. The device is equipped with UV-C light technology, which is known to kill bacteria and viruses. The UV light helps to eliminate bacteria and odors from the shoes, leaving them clean and fresh. The dryer function helps to remove moisture from the shoes, preventing the growth of mold and fungus. The device is designed to be user-friendly and easy to operate. It can be programmed to clean and dry shoes at regular intervals, making it a convenient and hassle-free solution for maintaining clean and fresh shoes. The automatic shoe box is also energy-efficient and eco-friendly, using minimal power to operate. Overall, the automatic shoe box with UV light and dryer is a great solution for anyone who wants to keep their shoes clean and fresh without the hassle of manual cleaning. It is a great investment for people who want to maintain the longevity of their shoes and ensure they are always in top condition.

1.2 PROJECT BACKGROUND

The background of the automatic shoe box with UV light and dryer lies in the need for a convenient and efficient solution for shoe cleaning and maintenance. Traditional methods of cleaning shoes can be time-consuming and require a lot of effort. Additionally, shoes can often harbor bacteria and fungus, leading to unpleasant odors and potential health risks. To address these issues, the automatic shoe box with UV light and dryer was developed. The device uses UV-C light technology to kill bacteria and viruses and a dryer function to remove moisture from the shoes. The device is designed to be user-friendly and easy to operate, making it a convenient solution for maintaining clean and fresh shoes. The development of the automatic shoe box with UV light and dryer was driven by the desire to create a more efficient and eco-friendly solution for shoe cleaning and maintenance. By automating the process, the device reduces the need for manual labor and minimizes the use of harsh chemicals and water. Overall, the automatic shoe box with UV light and dryer is a great example of how technology can be used to improve our daily lives by providing innovative and convenient solutions to common problems.

1.3 PROBLEM STATEMENT

The problem that an automatic shoe box with UV light and dryer aims to solve is the difficulty of maintaining the cleanliness and hygiene of shoes, which can lead to various health issues such as foot infections, bad odor, and overall discomfort.

Traditional shoe storage methods often involve leaving shoes in the open or in a closed shoe rack, which can lead to the accumulation of moisture, bacteria, and fungi. These factors can cause bad odor, mold growth, and foot infections, which can be a significant problem, especially for individuals with sensitive skin or respiratory conditions.

Moreover, drying the shoe has been a major concern as they are unable to dry the shoes on time or when emergency. Then it also gets hard to dry the shoes when monsoon season in Malaysia.

1.4 PROJECT OBJECTIVE

The objectives of this study were to design an Automatic shoe box with UV light and dryer. The following is a list of some of the objectives to achieved:

1. To speed up the drying time of the shoes.
2. To help users dry their shoes more easily due to weather change.
3. To eliminate any bacteria, germs and fungus from growing in the shoes.

1.5 PROJECT SCOPE

The scope of an automatic shoe box with UV light and dryer typically involves designing and developing a device that can effectively sanitize and dry shoes. Here are some key components and features that might be included in such a project:

- **Safety Features:** Safety should be a priority in the design of the automatic shoe box. It should include features such as automatic shutoff when the shoe box is opened or when the sanitization and drying process is complete. It should also have safeguards to prevent exposure to UV light during operation.
- **Power Source:** The shoe box would require a power source, such as an electrical plug or a rechargeable battery, to operate the UV light and drying mechanism.
- **Portability:** Depending on the intended use, the automatic shoe box may be designed to be portable and lightweight, allowing for easy transportation and storage.

CHAPTER 2 LITERATURE REVIEW

2.1 INTRODUCTION

A literature review is an essential component of a research project, as it helps the researcher to identify the most relevant and significant studies on a particular topic and to develop a research question and hypotheses. It also helps to guide the research methodology and to identify areas where further research is needed. For our project, we developed an automatic shoe box with UV light and dryer is a flexible and efficient. Other than that, we warranty that our Automatic Shoe box With UV light and Dryer is easy to operate and maintain by anyone, even beginners.

2.2 PREVIOUS DESIGN / RESEARCH WORK

Portable Shoe Dryers at Hammacher Schlemmer



This is the portable shoe dryer preferred by our customers when they travel because they can be stored in your footwear, and when plugged into an outlet at your destination they gently, safely, silently, and thoroughly dry your footwear overnight. The dryer fits inside a shoe to gradually remove moisture, eliminating bacteria buildup without damaging the material or shape of the footwear. A 20-watt thermal convection heating process silently circulates room air into the dryer, and throughout the shoe. Easy-to-transport, the dryers are ideal for hunting trips, beach vacations, ski or hiking excursions, or out-of-town marathons. Made by PEET, inventor of the original electric shoe dryer in 1968. Can be used with Men's footwear sized 7 and up, or Women's sized 5 and up. Set of two. 2 3/4" H x 2 3/4" W x 7 3/4" L. (3 lbs.).

SHOE AND GLOVE DRYER



A small fan pulls air through the shoes and gloves. In the portable unit shown here, you can turn the heat on or off. This boot dryer will also dry one pair of shoes or boots plus a pair of gloves at the same time, according to the product literature. For this particular model of shoe dryer, some thought needs to be put into supporting the unit. Other, more expensive models have their own stands.

Pro-We United Kingdom - UV Shoe Dryer



The ultra-quiet ventilator provides perfect air circulation. UV light fights bacteria. On your skiing holidays, hiking tours, after working in the garden or that autumn walk: However, damp your shoes may be at the end of the day, they will be dry and warm by the next morning. The light from built-in UV-LEDs combats bacteria. Boost your spirits for the coming day, even if it's cold and rainy.

- **Dries with a 40°C warm air stream.**

The flexible heating arms can be extended to a length of 21cm (8 1/4"). The air stream circulates through your shoes at 2.500 l per hour and is driven by extremely quiet ventilation technology developed for PCs.

- **Double safety.**

A thermos switch and a thermal safety fuse prevent the ventilator from overheating and ensure gentle drying. Ideal for preformed shoe liners and insoles.

2.3 CONCEPT AND THEORIES

The concept of an automatic shoe box with UV light and dryer is to provide a convenient and efficient way to clean and dry shoes. The shoe box is designed to automatically turn on the UV light and dryer when the shoes are placed inside, and turn them off when the shoes are removed. The UV light is used to kill bacteria and other microorganisms that can cause odors and infections in the shoes. The dryer is used to remove moisture from the shoes, which can also cause odors and promote the growth of bacteria and fungi. Theories that underpin the concept of an automatic shoe box with UV light and dryer include the germ theory and hygiene theory. The germ theory states that microorganisms such as bacteria and fungi can cause disease and infection. The use of UV light in the shoe box is based on this theory, as it is designed to kill bacteria and other microorganisms that can cause odors and infections in the shoes. The hygiene theory suggests that exposure to certain microorganisms can help to build immunity and prevent allergies and other immune-related diseases. The use of a dryer in the shoe box is based on this theory, as it is designed to remove moisture from the shoes, which can promote the growth of bacteria and fungi. Additionally, the concept of an automatic shoe box with UV light and dryer could also include a feature that saves time for the user. By providing a convenient and efficient way to clean and dry shoes, the user would not have to spend time manually cleaning and drying their shoes. This could be particularly beneficial for people who are busy or have a lot of shoes to clean and dry. The automatic feature of the shoe box means that the user can simply place their shoes inside and let the box do the work, freeing up time for other activities.

2.4 INDUSTRIAL APPLICATION

The automatic shoe box with UV light and dryer could have various industrial applications, particularly in industries that require workers to wear protective gear such as boots or shoes. The shoe box could be used to quickly and efficiently clean and dry the protective gear, reducing the risk of infections or other health issues. Additionally, the shoe box could be used in the hospitality industry to clean and dry shoes worn by employees, particularly those who work in kitchens or other areas where hygiene is important. The shoe box could also be used in sports facilities or gyms to clean and dry shoes worn by athletes or gym-goers. The automatic feature of the shoe box means that it can be used by multiple people, making it ideal for use in industrial or commercial settings.

Furthermore, the automatic shoe box with UV light and dryer could save time in industrial settings. By providing a convenient and efficient way to clean and dry protective gear or employee shoes, the shoe box could reduce the time and effort required to maintain hygiene standards. This could be particularly beneficial in industries that require frequent cleaning of protective gear or employee shoes, such as the food processing or healthcare industries. The automatic feature of the shoe box means that workers can simply place their gear or shoes inside and let the box do the work, freeing up time for other tasks. Additionally, the shoe box could be used by multiple workers, further reducing the time required to clean and dry protective gear or employee shoes.

2.5 COMMERCIAL VALUE STUDY

An automatic shoe box with UV light and dryer can have significant commercial value due to its potential benefits and market demand. Here are some factors that contribute to its commercial viability:

1. **Hygiene and Sanitization:** With increased awareness of hygiene and the importance of sanitizing personal belongings, including shoes, there is a growing demand for products that can effectively eliminate bacteria, viruses, and fungi. An automatic shoe box with UV light and dryer offers a convenient and efficient way to sanitize shoes, appealing to health-conscious consumers.
2. **Convenience and Time-saving:** The automatic functionality of the shoe box simplifies the sanitization and drying process for users. It eliminates the need for manual cleaning or waiting for shoes to air dry, saving time and effort. This convenience can be a strong selling point for busy individuals or those who prioritize efficiency.
3. **Versatility:** The automatic shoe box can be designed to accommodate various shoe sizes and styles, making it suitable for a wide range of users. This versatility enhances its market potential as it appeals to individuals with different shoe preferences, including sports enthusiasts, professionals, and fashion-conscious consumers.
4. **Technological Appeal:** Innovative and technologically advanced products often generate curiosity and interest among consumers. The integration of UV light and drying mechanisms in an automatic shoe box aligns with the trend of smart home devices and can attract tech-savvy consumers seeking modern solutions for everyday needs.

CHAPTER 3 METHODOLOGY

3.1 INTRODUCTION

The methodology of an automatic shoe box with UV light and dryer involves researching the best materials and components for the shoe box, designing and testing the shoe box to ensure that it meets safety and performance standards, developing the automatic features, manufacturing and assembling the product using high-quality materials and components, testing the product again for safety and performance, and packaging and shipping the product to customers with detailed instructions for use and maintenance.

3.2 GANTT CHART

Our project's Gantt chart is a visual representation of the tasks and timelines involved in our project.

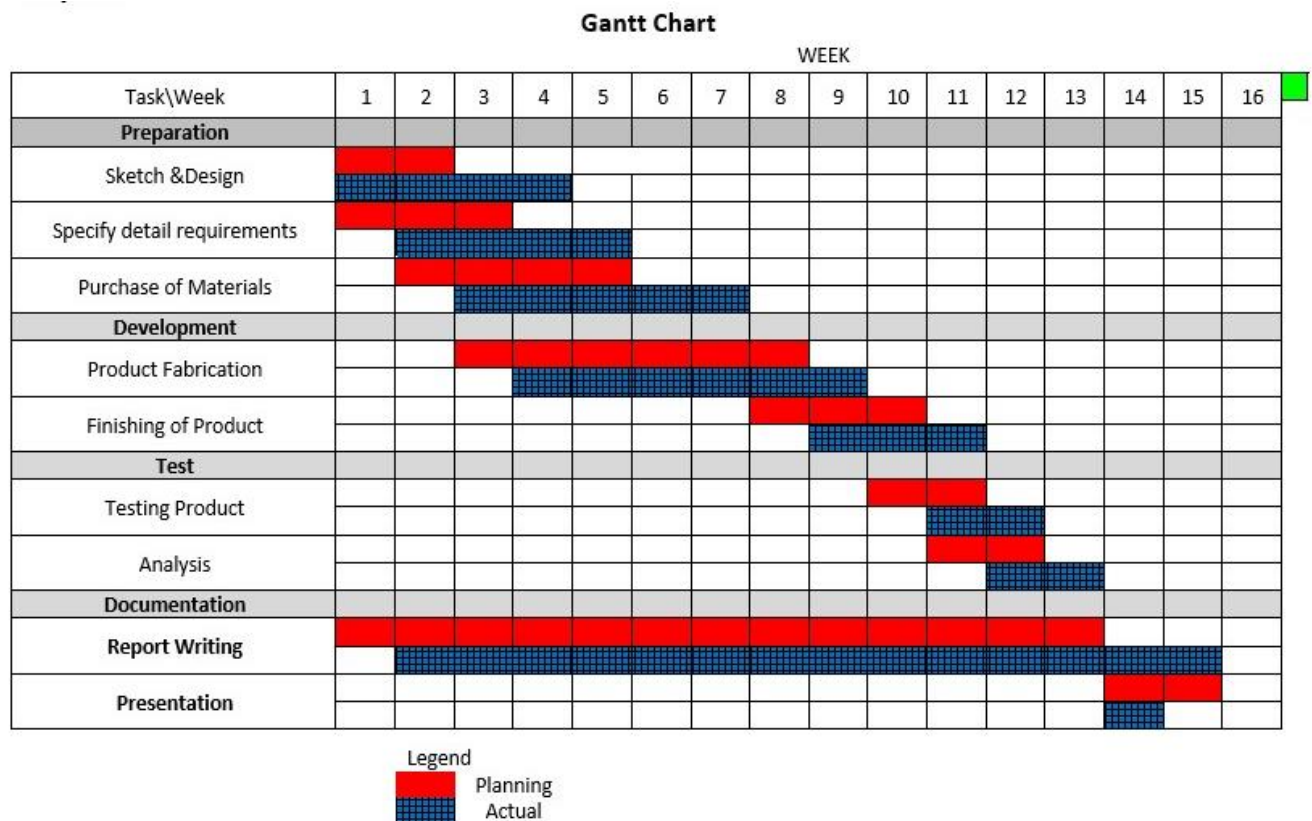
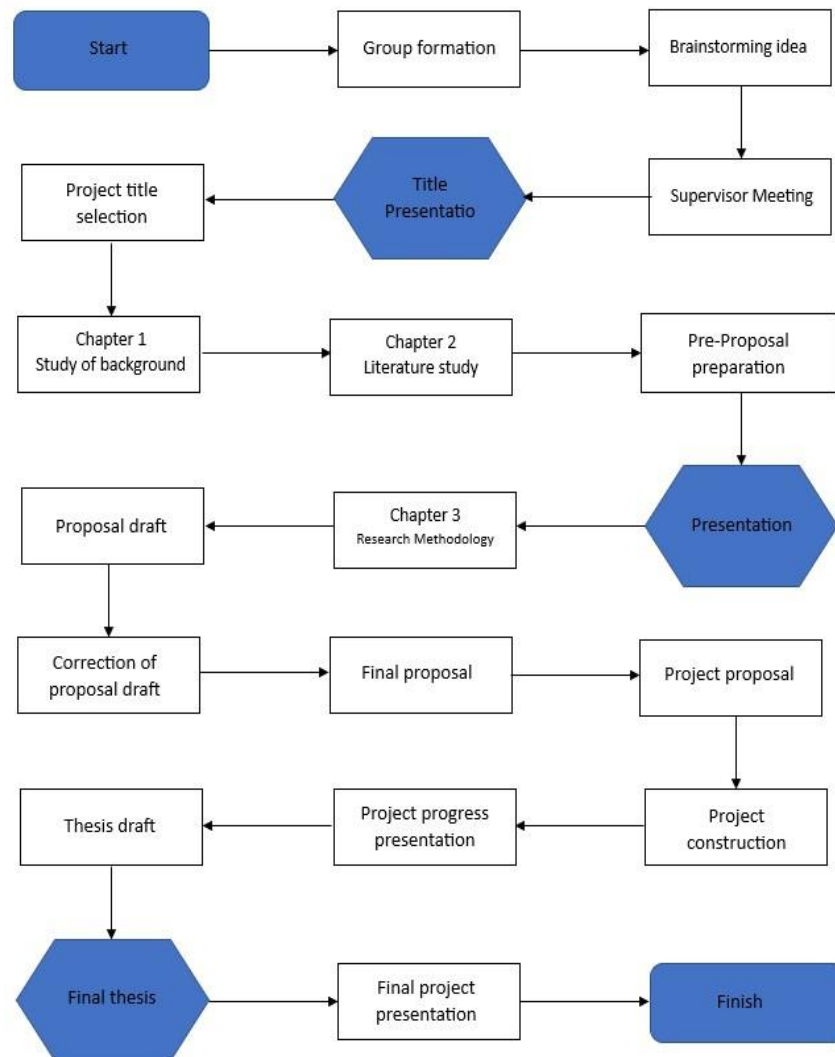


Table 3.1

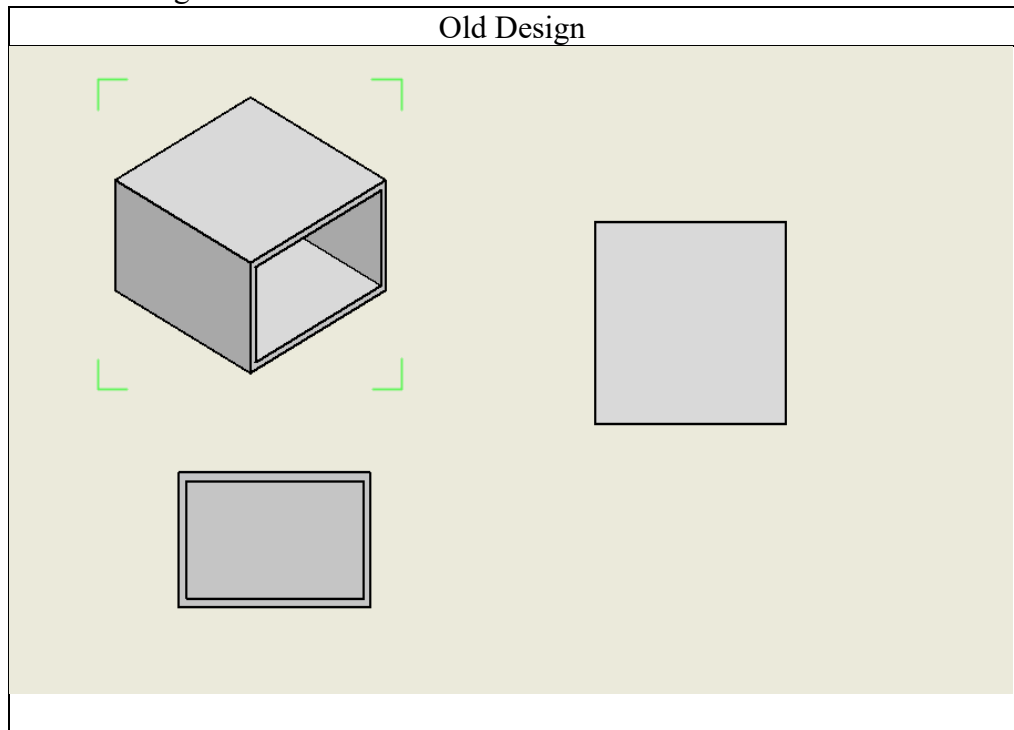
Based on the Gantt chart above, it helps us plan and track the progress of the project, and identify potential issues or delays before they occur. The chart includes horizontal bars that represent the duration of each task, and vertical lines that represent important milestones or deadlines. By using our Gantt chart, we can ensure that all tasks are completed on time and within budget, and communicate the project's status to stakeholders in a clear and concise manner.

3.3 FLOW CHART

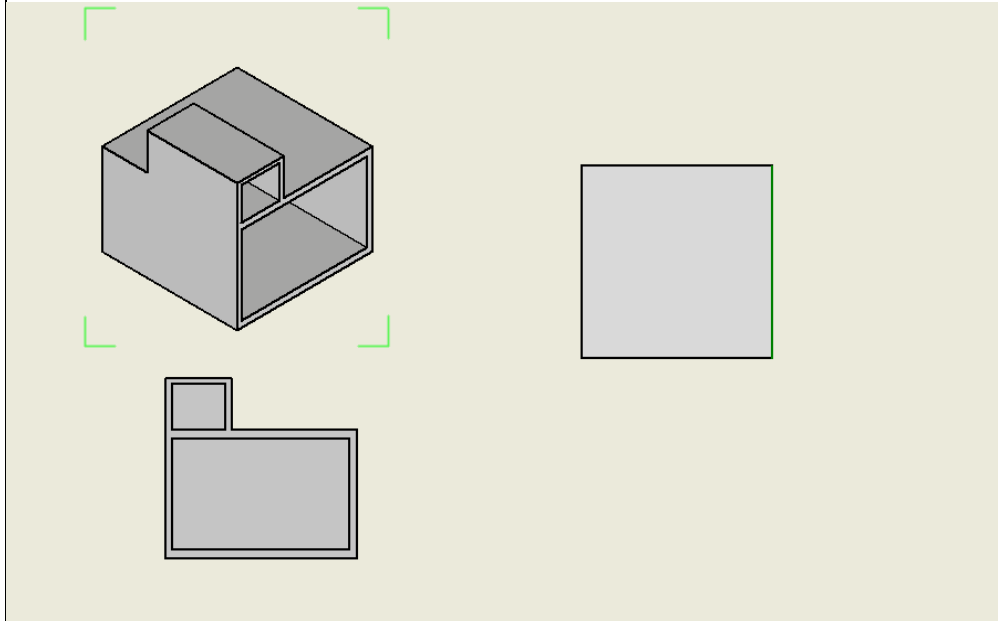


3.4 PROJECT DESIGN

3.4 Product Design



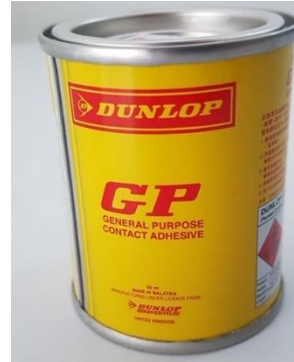
New design



3.5 WORK EQUIPMENTS

EQUIPMENT	PICTURES
Allen Keys	
Rubber mallet	
Screwdriver	

Plywood gam



Measuring tape



Handsaw



Hinge



Sand paper



Aluminum cutter



Battery 9V	
Cable jumper	

Table 3.2

3.6 COST ESTIMATION

NO	ITEMS	QUANTITY	COST (RM)
1	UV LIGHT	1	20
2	DC FAN 12 V	1	5
3	LM 35	1	4
4	1N4007 DIODE	1	2
5	LCD DISPLAY	1	10
6	ARDUINO UNO BOARD	1	30
7	10UF CAPACITOR	1	3
8	LED	1	1
9	12 VOLT BATTERY	1	14
10	2N2222 TRANSISTOR	1	2
11	1K RESISTOR	2	1
12	ALUMINIUM ROLL	1	25
13	PLYWOOD (2FT x 2FT)	6	60
	TOTAL		177

Table 3.3

3.7 DATA GATHERING METHOD

We gather information for our project through google form. The survey created to enquiry information about the effectiveness and the feedback from the users. Here are some questions we created to survey our project.

1. How easy was it to use the automatic shoe box?

	1	2	3	4	5	
Hard	☐	☐	☐	☐	☐	Very Easy

2. How satisfied are you with the quality of the automatic shoe box?

	1	2	3	4	5	
Dissatisfied	☐	☐	☐	☐	☐	Very Satisfied

3. How often do you use the automatic shoe box?

	1	2	3	4	5	
Never	☐	☐	☐	☐	☐	Frequently

4. How effective is the automatic shoe box at drying your shoes?

	1	2	3	4	5	
Very weak	☐	☐	☐	☐	☐	Very Effective

5. How effective is the automatic shoe box at sanitizing your shoes?

	1	2	3	4	5	
Very weak	☐	☐	☐	☐	☐	Very Effective

6. How satisfied are you with the design of the automatic shoe box?

	1	2	3	4	5	
Dissatisfied	☐	☐	☐	☐	☐	Very Satisfied

7. How likely are you to recommend the automatic shoe box to a friend ?

	1	2	3	4	5	
Not Recommended	☐	☐	☐	☐	☐	Extremely Recommended

8. How satisfied are you with the price of the automatic shoe box?

	1	2	3	4	5	
Dissatisfied	☐	☐	☐	☐	☐	Very Satisfied

8. How satisfied are you with the price of the automatic shoe box?

	1	2	3	4	5	
Dissatisfied	☐	☐	☐	☐	☐	Very Satisfied

9. How well does the automatic shoe box fit your needs?

	1	2	3	4	5	
Not Well	☐	☐	☐	☐	☐	Extremely Well

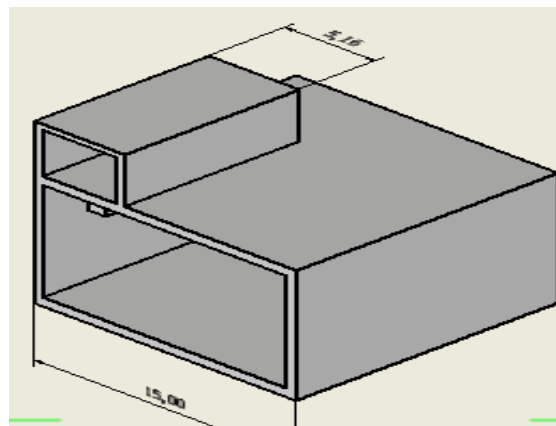
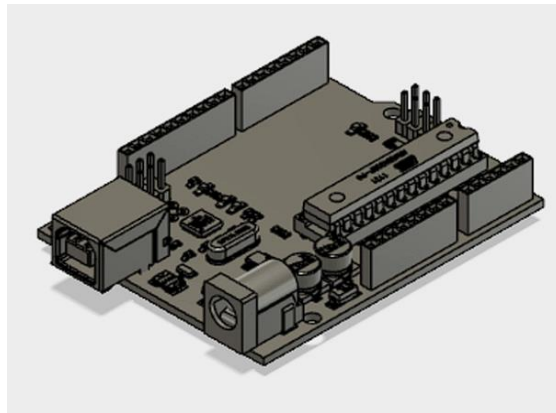
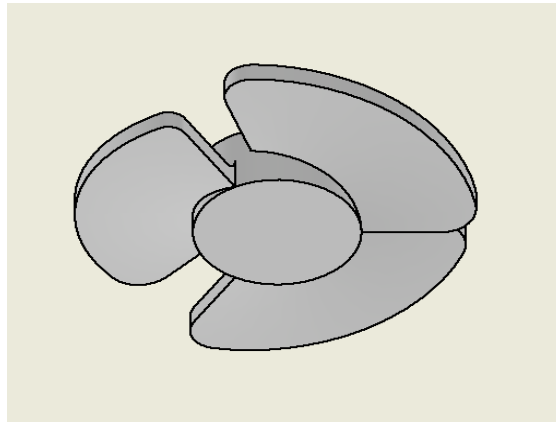
10. How satisfied are you with the customer service you received when purchasing the automatic shoe box?

	1	2	3	4	5	
Dissatisfied	☐	☐	☐	☐	☐	Very Satisfied

Submit

Clear form

3.8 PROJECT DRAWING



3.9 LIST OF MATERIAL

PLYWOOD

The plywood is used to construct the exterior of the shoe box, providing a sturdy and durable structure. Additionally, plywood can be easily cut and shaped to fit the specific design requirements of the shoe box, making it an ideal material for this type of project.

ALUMINIUM FRAME

The aluminum frame provides a strong and sturdy structure for the shoe box, while also being lightweight and easy to work with. The use of aluminum in the frame also helps to make the shoe box more resistant to corrosion and rust, which is important for a product that is designed to be used in a damp environment.

LCD SCREEN

An LCD screen can be used on the automatic shoe box with UV light and dryer to display information about the shoe box and its functions. The screen can be used to display the current temperature and humidity levels inside the box, as well as the time remaining for the drying cycle.

DC FAN

A DC fan can be used in the automatic shoe box with UV light and dryer to help circulate air and improve the efficiency of the drying process. The fan can be mounted inside the shoe box and used to draw in fresh air from the outside, helping to remove moisture and speed up the drying process.

ARDUINO

An Arduino can be used in the automatic shoe box with UV light and dryer to control and monitor the different components of the shoe box. The Arduino can be programmed to control the temperature and humidity levels inside the box, as well as the operation of the UV light, dryer, and DC fan.

TYRE

The tire is to easily move the shoe box from one location to another, without having to lift or carry it.

ALUMINIUM

Aluminum can be used inside the automatic shoe box with UV light and dryer to help reflect and distribute heat throughout the box. By lining the interior of the box with aluminum foil or sheets, you can help to create a more even distribution of heat, which can improve the efficiency of the drying process.

UV LIGHT

The UV light in the shoe box emits ultraviolet radiation, which kills bacteria and other microorganisms by damaging their DNA. This helps to eliminate odors and reduce the risk of infection. The UV light is typically located inside the shoe box, and it is activated during the drying process.

CHAPTER 4 RESULT AND ANALYSIS DATA

4.1 INTRODUCTION

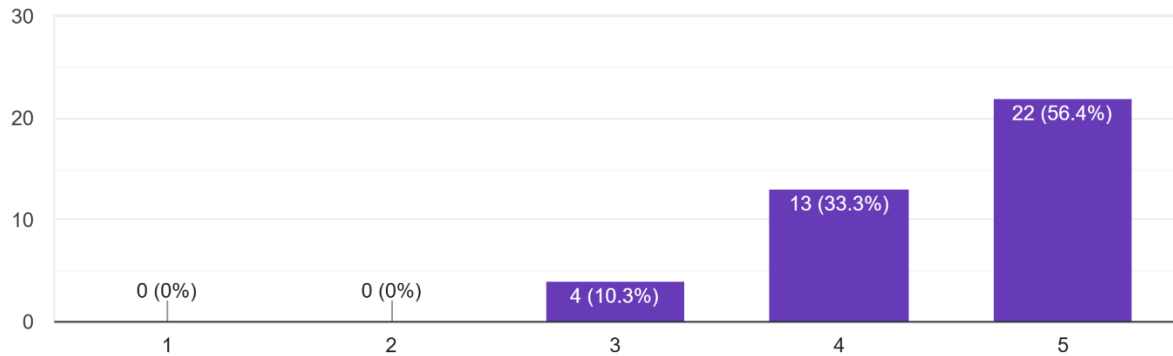
The results and analysis data of an automatic shoe box with UV light and dryer can be used to evaluate the effectiveness and efficiency of the drying process. By collecting and analyzing data on factors such as temperature, humidity, and drying time, we can gain insights into how well the shoe box is performing and identify areas for improvement.

4.2 DATA ANALYSIS AND STATISTIC

The data below are what we enquiry from the usures through the google form to gather the information.

1. How easy was it to use the automatic shoe box?

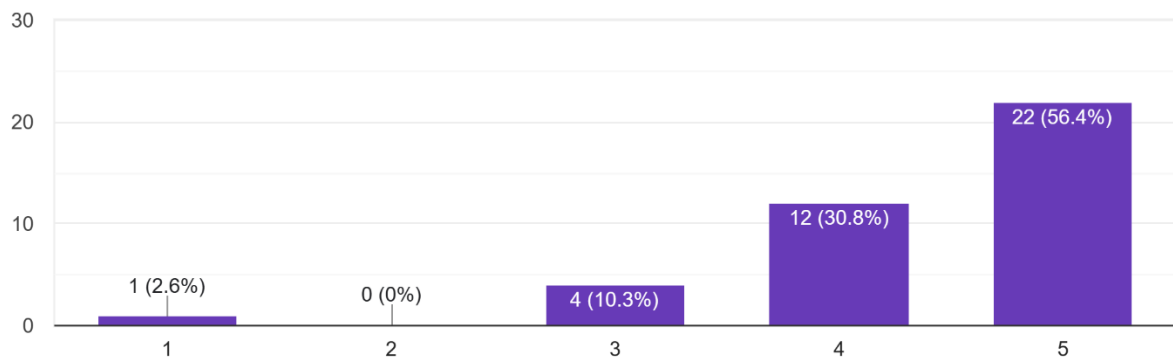
39 responses



- Majority have said that it is very easy to use this automatic shoe box with UV light and dryer.

2. How satisfied are you with the quality of the automatic shoe box?

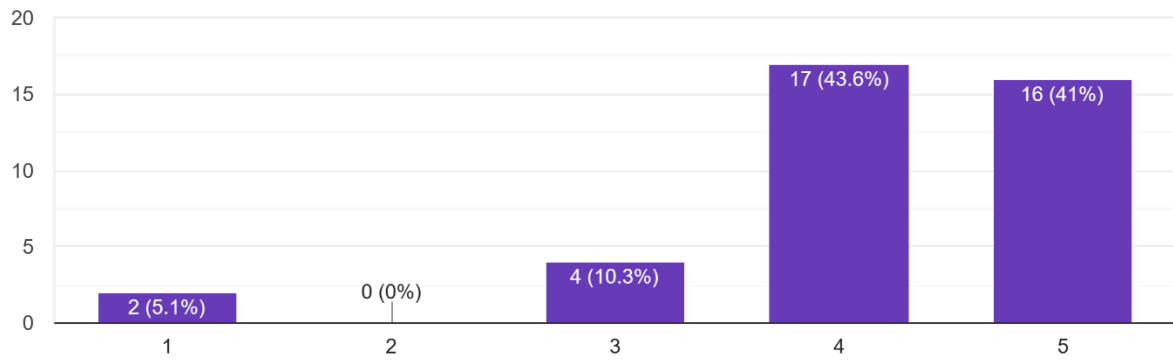
39 responses



- 56% of respondents are very satisfied with the quality of product .

3. How often do you use the automatic shoe box?

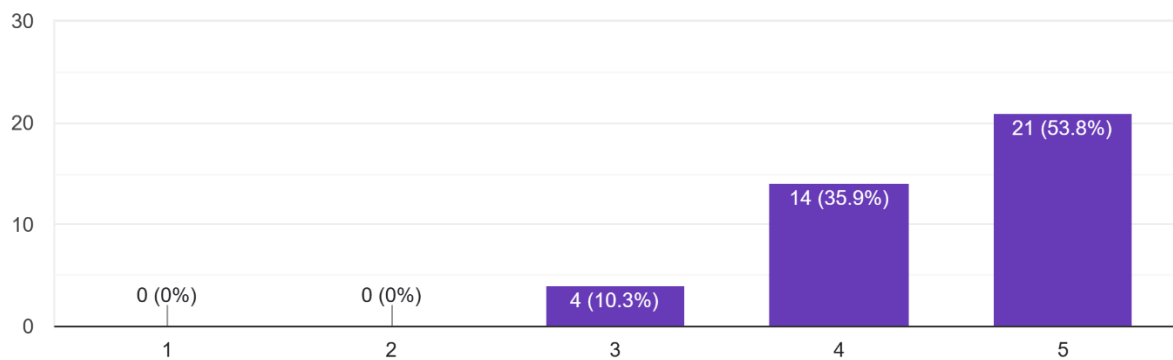
39 responses



- 17/39 of respondents are generally using this product.

4. How effective is the automatic shoe box at drying your shoes?

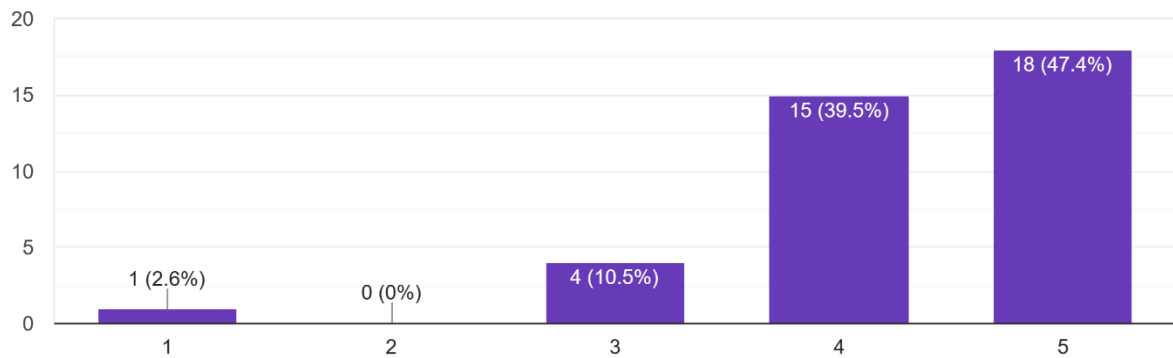
39 responses



- 21 respondents says that it is very effective at drying the shoe using this product.

5. How effective is the automatic shoe box at sanitizing your shoes?

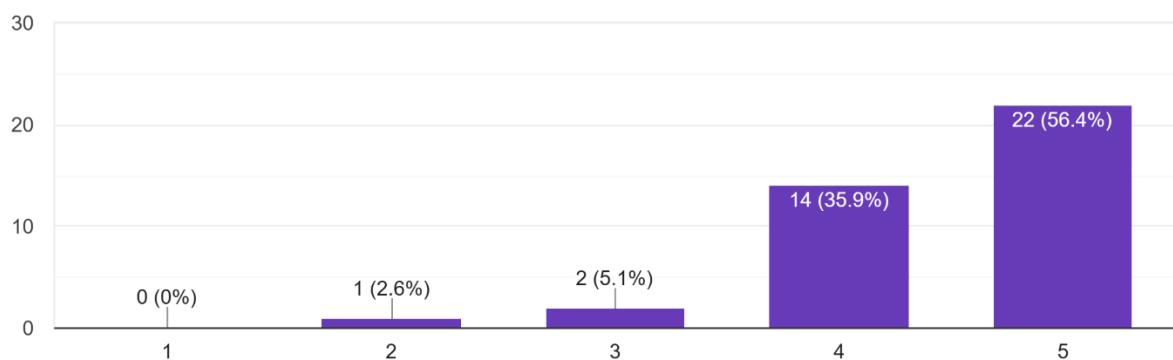
38 responses



- 18 out of 39 respondents says that it is very effective in sanitizing the shoe using this product.

6. How satisfied are you with the design of the automatic shoe box?

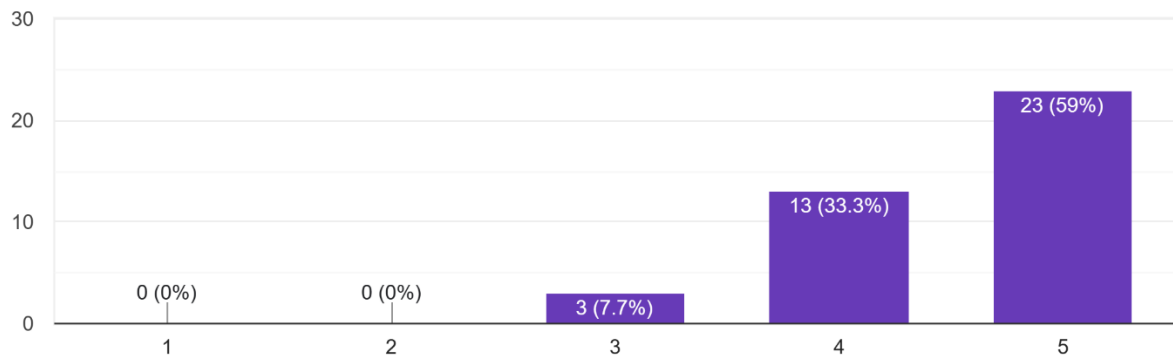
39 responses



- More than half respondents are very satisfied with the design of this product.

7. How likely are you to recommend the automatic shoe box to a friend ?

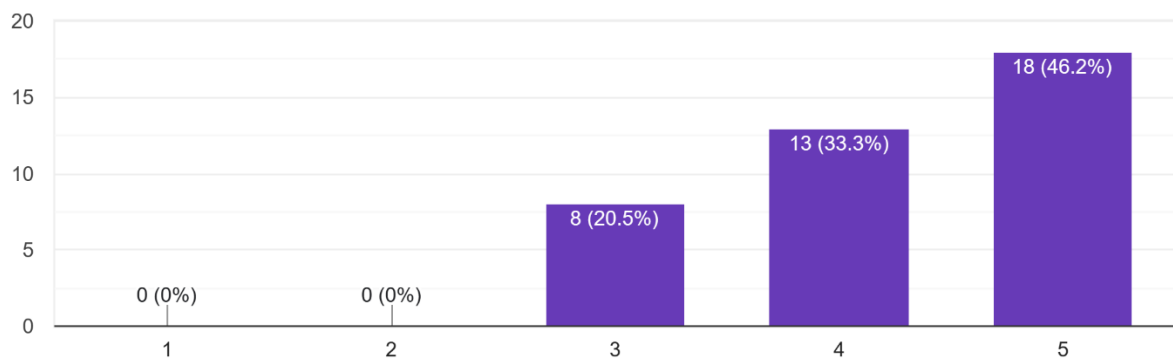
39 responses



- 23 of respondents are likely to recommend this product to a friend.

8. How satisfied are you with the price of the automatic shoe box?

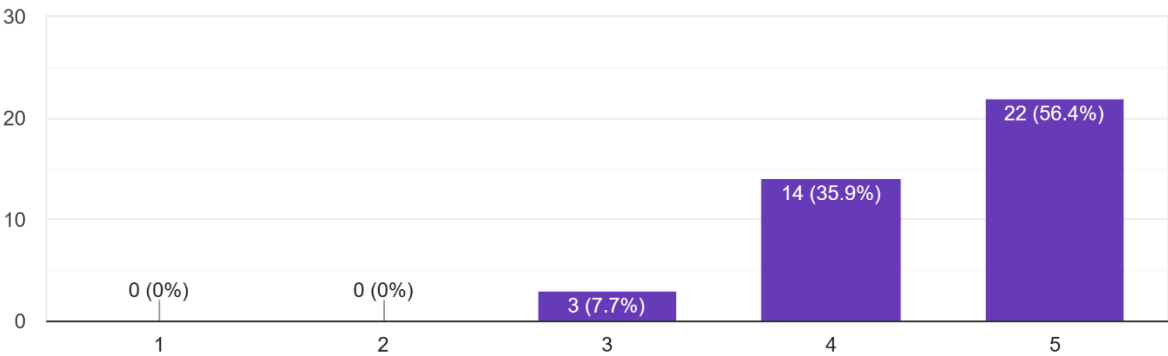
39 responses



- Most of the respondents are satisfied with this product's price.

9. How well does the automatic shoe box fit your needs?

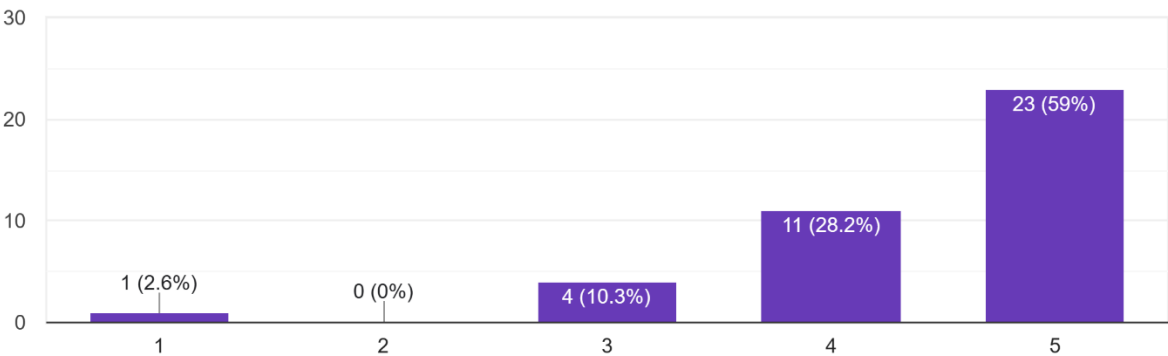
39 responses



- 22/39 respondents are extremely well with this product to fit their needs

10. How satisfied are you with the customer service you received when purchasing the automatic shoe box?

39 responses

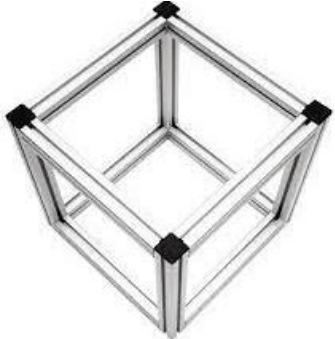


- 23 of respondents are very satisfied with the customer service when purchasing the product.

4.3 DESCRIPTION OF FINAL DESIGN SOLUTION

The final design solution of an automatic shoe box with UV light and dryer typically includes several key components, such as a heating element, a fan, a UV light, and a control panel. The heating element is responsible for generating heat, which is used to dry the shoes. The fan helps to circulate air throughout the shoe box, which helps to speed up the drying process and ensure that the shoes are evenly dried. The UV light is used to kill bacteria and remove odors from the shoes, which helps to keep them fresh and clean. The control panel allows users to adjust the temperature and drying time, which allows them to customize the drying process to suit their needs. The shoe box may also include other features, such as a built-in air filter, a removable shoe rack, or a compact and portable design that makes it easy to store and transport. Overall, the final design solution of an automatic shoe box with UV light and dryer is a sophisticated and effective device that provides a range of benefits and features to help users keep their shoes clean, dry, and fresh.

4.4 PROJECT FEATURES SPECIFICATION

 PLYWOOD	• Heat proof • 5MM (600mm*600m)
 UV LIGHT	• Sterilization • Time controller • Light tube
 ALUMINIUM FRAME	• Anti rust • 50 m



DC FAN

- 12 Voltage
- One fan used



LCD SCREEN

- Uses the liquid crystals for its operation
- The input voltage range is DC 4.5 V to 5.5 V



ARDUINO

- Microchip ATmega328P microprocessor
- input voltage range is 7–12 volts, and the operational voltage is 5 volts



ALUMINIUM

- 2MM (600mm*600mm)
- Contains inside the shoe box



TIRE

- Medium size tire
- Fixed below the box

4.5 NOVELTY AND INVENTIVENESS

An automatic shoe box with UV light and dryer is a novel and inventive product because it combines several useful features into one convenient package. The UV light component of the shoe box helps to eliminate bacteria and odors that can build up in shoes over time, which can help to keep shoes smelling fresh and clean. The dryer component of the shoe box helps to remove moisture from shoes, which can help to prevent mold and mildew from forming. By combining these two features into one product, an automatic shoe box with UV light and dryer provides a comprehensive solution for keeping shoes clean and dry.

In addition to its practical benefits, an automatic shoe box with UV light and dryer is also a unique and innovative product that stands out from other shoe storage solutions. The automatic feature of the shoe box makes it easy to use and provides a hands-free experience, which can be especially useful for people who are busy or on-the-go. The shoe box is also designed to be compact and lightweight, which makes it easy to store and transport.

Overall, an automatic shoe box with UV light and dryer is a practical, convenient, and innovative product that offers many benefits to users. Whether you're looking to keep your shoes clean and fresh, or simply want a more convenient way to store your shoes, an automatic shoe box with UV light and dryer is a great choice.

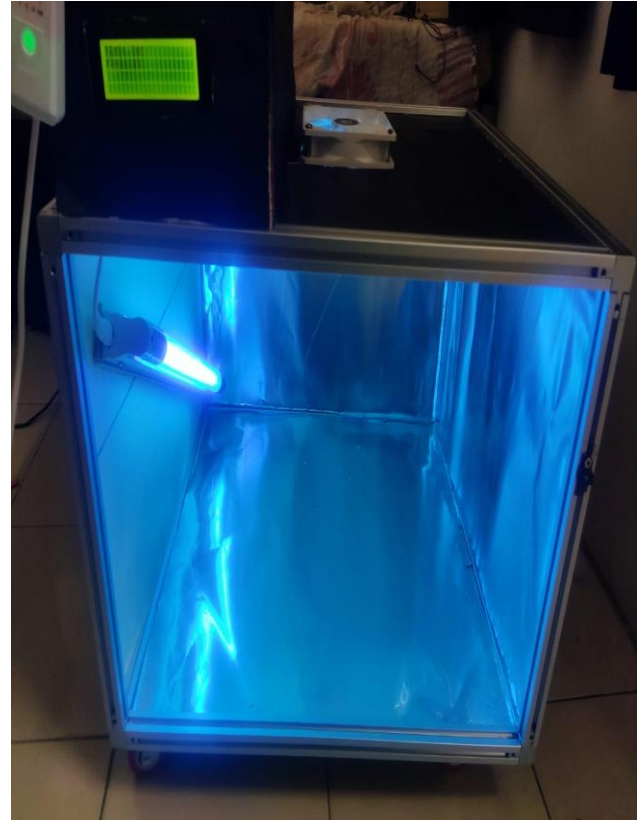
4.6 IMPACT AND APPLICATION OF THE PROJECT

The automatic shoe box with UV light and dryer has the potential to impact individuals in several ways. By reducing the risk of bacterial and fungal infections, it can help to improve the overall health and hygiene of individuals who wear shoes. This can be particularly beneficial for people who are prone to foot infections or who live in humid environments where shoes are more likely to become damp and dirty. The UV light in the shoe box is an effective way to kill bacteria and other microorganisms that can cause odors and infections. Additionally, the dryer function helps to remove moisture from shoes, which can prevent damage and extend the lifespan of the shoes. This can save individuals money by reducing the need to replace shoes frequently.

In addition to the benefits for individuals, the automatic shoe box with UV light and dryer can also have a positive impact on the environment. By reducing the number of shoes that need to be discarded due to damage or odor, it can help to reduce waste and promote sustainability. The shoe box can be used in a variety of settings, such as homes, gyms, and sports facilities, and can be customized to suit the needs of different users. For example, a shoe box in a sports facility may be designed to accommodate larger shoes and may have a more powerful drying function to accommodate the needs of athletes.

Overall, the automatic shoe box with UV light and dryer is a useful and innovative device that has the potential to improve the health, comfort, and sustainability of shoe use. By reducing the risk of infections, extending the lifespan of shoes, and reducing waste, it provides a practical solution to a common problem that affects many people.

4.7 PROJECT OUTCOME



4.8 DISCUSSION

The automatic shoe box with UV light and dryer is a device that has several potential benefits for individuals and the environment. By using UV light to kill bacteria and a dryer to remove moisture from shoes, it can help to reduce the risk of infections, extend the lifespan of shoes, and reduce waste. Additionally, it can be customized to suit the needs of different users and can be used in a variety of settings.

One potential drawback of the automatic shoe box with UV light and dryer is its cost. Depending on the model and features, it can be expensive to purchase and may not be accessible to all individuals. Additionally, some people may prefer to use more traditional methods, such as air-drying or using shoe deodorizers, to care for their shoes. Another potential issue is the effectiveness of the UV light in killing bacteria. While UV light is an effective method for killing bacteria, it may not be effective against all types of microorganisms. Additionally, the effectiveness of the dryer function may depend on the type of shoes being dried and the level of moisture present.

Another potential benefit of the automatic shoe box with UV light and dryer is that it can save individuals' time. By providing a convenient and efficient way to care for shoes, it can help to reduce the time and effort required to maintain them. This can be particularly beneficial for people who have busy schedules or who do not have the time or energy to devote to shoe care. Additionally, the automatic shoe box with UV light and dryer can be used overnight or while individuals are away from home, allowing them to care for their shoes without interrupting their daily routines. Overall, the time-saving benefits of the automatic shoe box with UV light and dryer can make it a valuable addition to the lives of many individuals.

Despite these potential drawbacks, the automatic shoe box with UV light and dryer is a promising device that has the potential to improve the health, comfort, and sustainability of shoe use. By addressing common problems associated with shoe use, such as bacterial infections and shoe damage, it provides a practical and innovative solution that can benefit many individuals.

CHAPTER 5 CONCLUSION

5.1 INTRODUCTION

In this chapter, we will explain the achievement of goals and objectives of the project Automatic Shoe Box with UV light And Dryer and then suggestions and recommendations from us to further improve the project to influence to many users.

5.2 ACHIEVEMENT OF AIMS AND OBJECTIVE OF RESEARCH

The research on the automatic shoe box with UV light and dryer has achieved its aims and objectives by providing a comprehensive analysis of this innovative device. The research has explored the various benefits and drawbacks of the automatic shoe box with UV light and dryer, including its potential to reduce the risk of infections, extend the lifespan of shoes, and reduce waste. Additionally, the research has identified some of the potential issues associated with the automatic shoe box with UV light and dryer, such as its cost and effectiveness. By providing a detailed analysis of the automatic shoe box with UV light and dryer, the research has helped to advance our understanding of this device and its potential impact on shoe care. Overall, the research has achieved its aims and objectives by providing a valuable contribution to the field of shoe care and sustainability.

5.3 SUGGESTIONS AND RECOMMENDATIONS

The automatic shoe box with UV light and dryer is a great investment that can help you keep your shoes clean, fresh, and in good condition. The box uses UV-C light to kill up to 99.9% of bacteria, viruses, and fungi that can cause bad odors and infections. The dryer uses a combination of heat and air circulation to remove moisture quickly and prevent the growth of mold and mildew. The shoe box is made of high-quality materials that are durable and long-lasting, and it's designed to fit most shoe sizes.

The shoe box is easy to use and can be set up in minutes. Simply plug it in, open the lid, and place your shoes inside. The dryer has a timer that can be set to 15, 30, or 60 minutes, and the UV light will turn on automatically when the lid is closed. The shoe box is also lightweight and portable, so you can take it with you when you travel. The shoe box is especially helpful for those who have busy schedules and don't have time to clean their shoes manually. It's also a great investment for those who have expensive shoes that they want to keep in good condition.

Overall, the automatic shoe box with UV light and dryer is a smart purchase that can help you save time, money, and effort. It's a convenient way to keep your shoes clean and fresh, and it's designed to be easy to use and long-lasting. The UV-C light and dryer are effective at killing bacteria and removing moisture, which means your shoes will smell better and last longer. The shoe box is also a great way to protect your investment in expensive shoes. If you're looking for a way to keep your shoes in good condition without spending a lot of time and effort, the automatic shoe box with UV light and dryer is definitely worth considering.

5.4 CONCLUSION

The automatic shoe box with UV light and dryer is an innovative device that can help individuals improve the health, comfort, and sustainability of their shoes. By using UV light and drying technology, the device can effectively disinfect and dry shoes, reducing the risk of infections and extending the lifespan of footwear. The device is easy to use and requires minimal effort, allowing individuals to spend less time cleaning and drying their shoes manually. Additionally, the device can help extend the lifespan of shoes, reducing the need to purchase new footwear as frequently. This can save time and money in the long run. While the device may have some drawbacks, such as its cost and effectiveness, it can be a worthwhile investment for anyone who cares about proper shoe care. Overall, the automatic shoe box with UV light and dryer is a convenient and time-saving tool for anyone who wants to keep their shoes clean, dry, and in good condition.

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APPENDICS

APPENDIX 1 Questionnaire form

APPENDIX 2 List of Respondents

39 responses

 [Link to Sheets](#)



Accepting responses 

Summary

Question

Individual

39 responses

 [Link to Sheets](#)



Accepting responses 

Question

Individual

1. How easy was it to use the automatic shoe box?

2. How satisfied are you with the quality of the automatic shoe box?

3. How often do you use the automatic shoe box?

4. How effective is the automatic shoe box at keeping your feet dry?

5. How effective is the automatic shoe box at keeping your feet warm?

6. How satisfied are you with the design of the automatic shoe box?

7. How likely are you to recommend the automatic shoe box to a friend?

8. How satisfied are you with the price of the automatic shoe box?

9. How well does the automatic shoe box fit your foot?

10. How satisfied are you with the overall purchase of the automatic shoe box?

< 1 of 10 >

4 5

☐ ☒ Very Easy