



**PROJECT 2 :
FINAL PROJECT REPORT**

78

DEVELOPMENT OF AIR VACUUM TECHNOLOGY

DMP5A

SESSION II 2021/2022

**Mechanical Engineering Department
(Packaging)**

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DEVELOPMENT OF AIR VACUUM TECHNOLOGY

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Mechanical Engineering Department

DECLARATION OF ORIGINALITY AND COPYRIGHT

TOPIC: DEVELOPMENT OF AIR VACUUM TECHNOLOGY

SESSION II 2021/2022

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At Politenik Sultan Salahuddin Abdul Aziz Shah, In front of,

DR. MOHD ELIAS BIN DAUD

As project supervisor on a date of:

ACKNOWLEDGE

Alhamdulillah, our gratitude to the almighty Allah S.W.T and blessings with peace for beloved Prophet Muhammad S.A.W because with permission and gift can we prepare our project which is 'DEVELOPMENT OF AIR VACUUM TECHNOLOGY'. With heartfelt appreciation and gratitude, we said to our supervisor coordinator, Mr DR. MOHD ELIAS BIN DAUD for his guidance and encouragement and advice to us. The information and guidance is effective for giving us the spirit of our project is to produce more efficiently. Also thanks to the other lecturers who have given us supported and encouragement throughout this project. I want to thank infinitely to our parents for always giving moral with supported along the way we set up the project in this institution and not forgetting the guidance of colleagues with a lot of helpers and a remembered to every detail during conduct report of this project. Finally, I would like to thank those involved directly or indirectly in making this report.

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ABSTRACT

The project is about a smoke detection tool that can detect and absorb the smoke automatically. This tool is able to remove the accumulated smoke from places like kitchen and other systematically enclosed place with easy maintenance. Besides that, this tool could be used with the control over the telephone (IOT) manually and automatically. In addition to that, this gadget is also equipped with the source of emergency energy supply. Our main objective in this project is to study about the fire system especially the smoke that accumulates in an enclosed place in the house. We intend to study more details about home kitchen using vacuum technology that permeates smoke and emits smoke. In the home environment where smoke accumulates and difficult to be removed, there is a need to develop and use portable smoke exhaust fans that can perform emergency ventilation in the event of firefighting and rescue operations. The method used to solve this simulation problem was by using Fusion 360 software and making a prototype using cardboard. Air Vacuum Technology has many disadvantages in terms of the electronic components used. As a result of this method, it will be easier for technological equipment to be quickly damaged if misconnected or misplaced. Therefore, it is necessary to study the components first so that there are no unwanted things such as damage to the installed components. Although at the beginning of the project there were some problems such as difficult usage as well as lack of safety features, the project could eventually be improved by replacing and adding the appropriate components. This project of course took a long time to meet the set criteria. With the cooperation given by each team member guided by the project supervisor, the project could be completed successfully. After various studies and experiments conducted for this project, we could confidently say that this project will have a positive impact for the society. Overall, the project has met the criteria and objectives of the project because it can facilitate the work of users in the production process. The system used is well received as it is easy to operate and maintain.

Keyword : exhaust fan, vacuum technology, exhaust fan vacuum automatic

ABSTRAK

Projek ini adalah mengenai alat pengesan asap yang boleh mengesan dan menyerap asap secara automatik. Alat ini mampu mengeluarkan asap terkumpul dari tempat seperti dapur dan tempat lain yang tertutup secara sistematik dengan penyelenggaraan yang mudah. Selain itu, alat ini boleh digunakan dengan kawalan melalui telefon (IOT) secara manual dan automatik. Selain itu, gajet ini juga dilengkapi dengan sumber bekalan tenaga kecemasan. Objektif utama kami dalam projek ini adalah untuk mengkaji tentang sistem kebakaran terutamanya asap yang terkumpul di tempat tertutup di dalam rumah. Kami berhasrat untuk mengkaji lebih banyak butiran tentang dapur rumah menggunakan teknologi vakum yang meresap asap dan mengeluarkan asap. Dalam persekitaran rumah di mana asap terkumpul dan sukar untuk dikeluarkan, terdapat keperluan untuk membangunkan dan menggunakan kipas ekzos asap mudah alih yang boleh melakukan pengudaraan kecemasan sekiranya berlaku operasi memadam kebakaran dan menyelamatkan. Kaedah yang digunakan untuk menyelesaikan masalah simulasi ini adalah dengan menggunakan perisian Fusion 360 dan membuat prototaip menggunakan kadbod. Teknologi Vakum Udara mempunyai banyak kelemahan dari segi komponen elektronik yang digunakan. Hasil daripada kaedah ini, peralatan teknologi akan lebih mudah rosak dengan cepat jika tersalah sambung atau tersalah letak. Oleh itu, perlu dikaji dahulu komponen-komponen tersebut supaya tidak berlaku perkara yang tidak diingini seperti kerosakan pada komponen yang dipasang. Walaupun pada permulaan projek terdapat beberapa masalah seperti penggunaan yang sukar serta kekurangan ciri keselamatan, projek itu akhirnya boleh diperbaiki dengan menggantikan dan menambah komponen yang sesuai. Projek ini tentunya mengambil masa yang lama untuk memenuhi kriteria yang ditetapkan. Dengan kerjasama yang diberikan oleh setiap ahli pasukan yang dibimbing oleh penyelia projek, projek ini dapat disiapkan dengan jayanya. Selepas pelbagai kajian dan eksperimen dijalankan untuk projek ini, kami dengan yakin boleh mengatakan bahawa projek ini akan memberi impak positif kepada masyarakat. Secara keseluruhannya, projek tersebut telah memenuhi kriteria dan objektif projek kerana dapat memudahkan kerja pengguna dalam proses pengeluaran. Sistem yang digunakan diterima dengan baik kerana mudah dikendalikan dan diselenggara.

Kata kunci : kipas ekzos, teknologi vakum, kipas ekzos vakum automatic

CHAPTER 1

INTRODUCTION

1.1) INTRODUCTION OF CHAPTER

This end of semester project is one of the very major projects important and should be implemented with the success of every student of semester 5 for complete assignments for the DJJ50193 course in accordance with the requirements for earning Diploma in Mechanical Engineering. To implement this Final Project, each individual in groups have to go through a number of procedures that have been set by the Department Malaysian Polytechnic Education.

In the beginning, each individual in groups are given the freedom to determine and make project choices that will be produced. At the same time also, the selected project must contain all elements contained in the Program Student Project Guidebook Diploma. Each group member should seek advice from The respective Project Supervisors who have been appointed by the Department to provide proposal according to the title of the project to be presented on the appointed date. The proposal to be produced must follow the given format and everything information about the project to be produced and has been agreed by each member group.

In addition, the final presentation of the project will be done in front of a panel of evaluators during the project presentation before the final exam of the semester begins together jury panel. In the presentation that will be held later, the jury panel is free to voice their opinions in all aspects deemed appropriate and necessary for this project. The project progress for each week will be recorded in a Gantt Chart guided by the original planning then each work process will be able to be carried out in an orderly and detailed manner. The Final Project Report needs to be done in the same time same and must end prior to the presentation of the Project The final will be judged by the panel based on the pre -determined scoring. In addition, a log book should also be provided for each group member to record activities performed weekly throughout the project are produced.

1.2) BACKGROUND RESEARCH

Air Vacuum Technology is a device that can detect smoke and then suck the smoke automatically and remove the accumulated smoke from the place systematically with easy maintenance. Can control via IOT phone and Has an Emergency Energy Supply Source.

In home kitchen of environment where smoke control equipment is not installed, or its operation is difficult, there is a need to develop and utilize a portable smoke exhaust fan that can perform emergency ventilation in case of fire suppression and rescue operations. As a part of the development process for portable smoke exhaust fans, a numerical analysis model of the portable smoke exhaust fan was derived from the building in which a fire occurred, and an analysis on the smoke and toxic gas exhaust effects was performed in this study. The numerical analysis results showed that under a condition where the height of an opening is less than 1.0 m after fire source disappears in a situation where the smoke exhaust fan does not operate, smoke does not come out well, and thus the density of smoke within the target area does not drop significantly. On the other hand, if the smoke exhaust fan operates after the fire source disappears, smoke is directly exhausted to the outside due to the operation of the smoke exhaust fan, and the smoke density within the space drops sharply in all opening height conditions, thereby getting close to zero.

1.3) PROBLEM STATEMENT

In today's age of advanced technology, many deaths in fires, especially due to smoke accumulated in a place cause victims to suffocate. Among the studies we found is the issue of unsecured safety. When a person is in a fire situation, while he is extinguishing the fire, more and more smoke will accumulate resulting in the scene being filled with so much smoke that it is difficult to remove resulting in difficulty in breathing.

So with the Air Vacuum Technology, it is easier to remove the smoke that has accumulated in a place filled with smoke and does not cause shortness of breath to the victim during a fire in a place where smoke has accumulated. Nowadays, there are technologies for extinguishing fires that do not have a special system to remove the smoke that accumulates in buildings and homes. In addition, if in places such as buildings and houses there are exhaust fans installed respectively in the place installed during the fire exhaust fan will not work because the electricity will be cut off during the incident causing smoke to accumulate. So, with the Air Vacuum Technology, the work of inhaling the smoke that has accumulated in a place will be removed quickly and automatically. This is because Air Vacuum Technology has an Internet Of Things (IoT) system and has a battery supply

Among the problem statements that we can list are :

- Based on study, conducted by *Jos Sobral* on (April 27, 2017) states that when facing a fire about one third of the safety systems do not work properly just because of the lack of inspection, test or maintenance of such systems.
- When a fire occurs, the smoke of the fire accumulates in large amounts in the suction chamber when the fire occurs.
- The flow of the suction system acts slowly and is easily damaged because the motor he is not heat resistant.

1.4) OBJECTIVE

The objective of this study is very important as a guideline for the purpose of the product produced. It refers to the statement of a problem that occurs to find a solution to the problem.

Here are the objectives to produce a development project of Air Vacuum Technology :

- Our objective for this project is To study about the fire system in the home kitchen.
- The second objective is To design a system that can help extinguish fires quickly and systematically in the event of a fire.
- And for the final objective To develop air vacuum system technology.

1.5) LIMITATION & SCOPE

i. The project takes time to remove the accumulated smoke in 30 minutes to 1 hour.

ii. This project has 2 exhaust fans main function which is to inhale smoke and remove smoke.

iii. This project uses an Internet of Things (IoT) system that can be controlled remotely using the existing 'Smart Life' application.

iv. Maximum area that can be smoked 5 x 6 feet.

1.6) IMPORTANCE OF RESEARCH

This project is an important thing to implement, it can benefit the community such as:

- To remove smoke accumulated in buildings and houses
- To prevent shortness of breath during a fire
- To benefit the community in terms of safety.
- Find solutions to problems that exist in buildings and homes.
- To solve any problem about smoke accumulating in a place.
- To learn how to face, solve, correct any problems encountered before.

1.7) DEFINITION OF TERMS/ OPERATIONS

- Switch Wi-Fi
- Exhaust Fan
- Smoke Detector
- Mini Fan

How to use the Development Of Air Vacuum Technology project is as follows: Air Vacuum Technology has the Internet Of Things (IoT) where everything can be controlled manually and automatically in this project:

- 1) The manual usage method is to press the switch button on the project plug to turn the project on and off.
- 2) The method of automatic use is to install the application provided, namely Smart Life.
- 3) Ensure the project is in the ON state.
- 4) Use Wi-Fi and GPS to connect the project with the IoT on the phone.
- 5) After connecting the application with the phone then we can control this project remotely.

1.8) SUMMARY OF CHAPTER

In this chapter, there is some information about the problem statement of the project and the purpose for which the project is carried out. In addition, the objective of running the project is clearly to assist students and employees in making the cleaning work so that it becomes more simple and advanced in the modern era.

CHAPTER 2

LITERATURE REVIEW

2.1) CHAPTER INTRODUCTION

At the beginning of the project, a literature review was carried out, which included studies from sources such as internet sources and sources related to Air Vacuum Technology. The collection of information from the literature review is particularly important as a preliminary step. In the implementation of a project, various steps must be taken from the beginning until the completion of the project. Problems encountered on products are reviewed and refined to obtain better products.

a) Ceiling Exhaust Fans :

A ceiling exhaust fan, as the name suggests, is an exhaust fan that is mounted on a ceiling. These fans expel air upwards through the ceiling and can be exhausted into the roof cavity or ducted to be exhausted outside. A ceiling exhaust fan is one of the most popular methods of ventilating a room. When choosing a ceiling exhaust fan, consider the capacity (airflow) required – usually based the room size and its use. Secondly what hole-size is required (especially if replacing an existing fan), and thirdly does the fan need to be able to connect to duct work. Here at Universal Fans we have a large range of ceiling mounted ventilation fans, including ductable and non-ductable models. There are a few basic rules to picking a domestic ceiling mounted fan:

b) Wall Exhaust Fans :

A wall exhaust fan is particularly useful where there is limited ceiling / roof space. We have several styles of wall exhaust fans including those where the wall fan motor is located on the inside of the room and those located on the outside of the wall. Our range includes a variety of exhaust capacities ranging from your standard toilet performance to large areas requiring a high capacity exhaust fan. Typically a wall fan will consist of the motor component (inside) with ducting or tubing leading to an external vent. There are a few things to consider when installing a wall mounted exhaust fan. If you are replacing an old exhaust fan you will need to remove the wall fan and measure the hole size. It is also necessary to measure the depth of the wall. For a new installation you just need to be sure your fan is suitable based on the depth of the wall – you will need to make a suitable hole in the wall to accommodate the fan. Remember that if not selecting one of exact size, it is usually easier to make a hole bigger rather than filling in a hole to make it smaller, depending on the wall material of course.



c) Inline Exhaust Fans :

An inline exhaust fan is usually installed directly into the ceiling cavity and typically mounted in-between lengths of ducting. Inline fans are popular for areas that do not have clearance or roof space for a ceiling exhaust fan. Using an inline exhaust fan within the roof cavity often results in reduced noise. Our inline fan range covers residential, commercial and industrial applications

1992 – 2014 – East Malvern (Victoria)
2014 – Present Day – Oakleigh South (Victoria)

Integrated Fire Detection System :

The integration of a fire detection system with other building systems on a common backbone will allow the building systems to communicate with each other. The fire messages will be released not only from fire detection systems but also from other building systems. They will have priority at all times in the network. The decision-making components of the integrated system will assess the conditions and then determine what actions are required based on the sensor data. The appropriate commands will be sent to the system's transducers and control devices. Once a fire occurs in a building, fire detection and alarm systems in buildings will be able to activate various fire safety systems, such as smoke control, and various pressurization and smoke exhaust systems.

(Liu, Zhigang & Kim, Andrew. (2003). Review of Recent Developments in Fire Detection Technologies. Journal of Fire Protection Engineering. 13.)



2.2) CONCEPT/THEORY

Internet Of Things (IOT) :

IOT literally means “the internet of things”. In IOT, things can perceive its environment independently, exchange data and information as environment changes, make spontaneous reaction according to time, and meanwhile dynamically build service interfaces, so people may easily consult different kinds of smart interfaces of internet about the status and information of things. IOT is another wave of information industry following computer, internet and mobile communication network, representing a greater innovative revolution in technology.

The main purpose of this project is to remove smoke from inside the building using **Air Vacuum Technology (AVT)** in a short period of time. To achieve the required functions to be performed by (AVT) :

2.2.1) Emit smoke from home kitchen :

In this situation, the smoke detector detects smoke and the exhaust fan works to carry the smoke out through the filter. In addition, the liquid cooler is able to monitor the temperature continuously and then acts to cool the fan motor.

2.3) SUMMARY OF CHAPTER

In conclusion, this chapter tells about the concept or theory and previous studies on exhaust fan. In the previous study, there were three types of exhaust fans with different concepts and mechanisms. Among the three references, there are several techniques and concepts that can be used in producing this project. Systematic planning of concepts or theories in producing a project also plays a role in getting the project to operate smoothly and have an orderly arrangement of mechanisms.

Take that
format

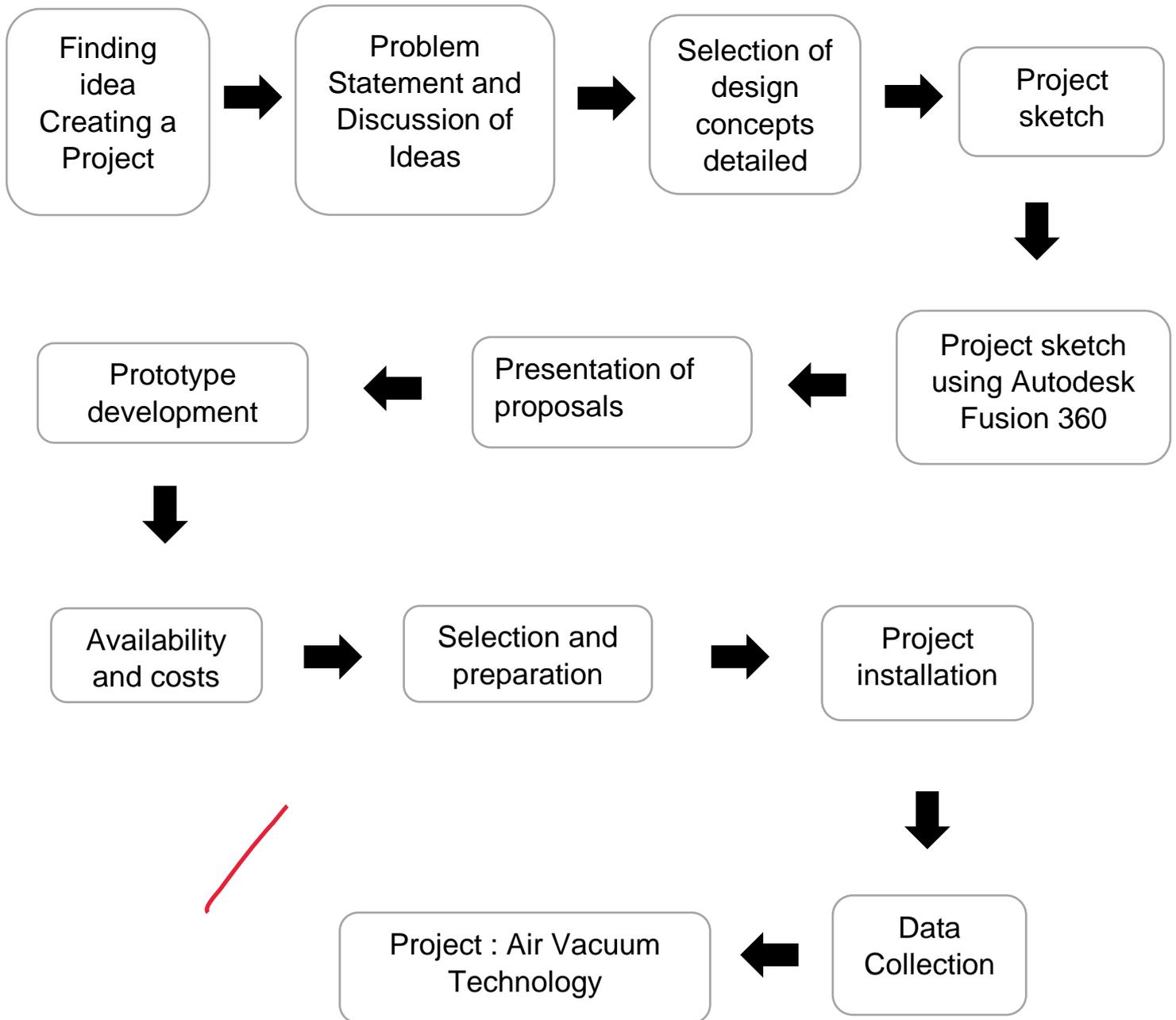
CHAPTER 3

METHODOLOGY

3.1) INTRODUCTION OF CHAPTER

Research methodology is a method and technique of designing, collecting and analyzing data in order to produce a complete design study. Methodology describes the method of a problem being studied and the reason why a particular method and technique is used. The purpose of the methodology is to help understand more broadly or in more detail the application of the method by making a description of the research process.

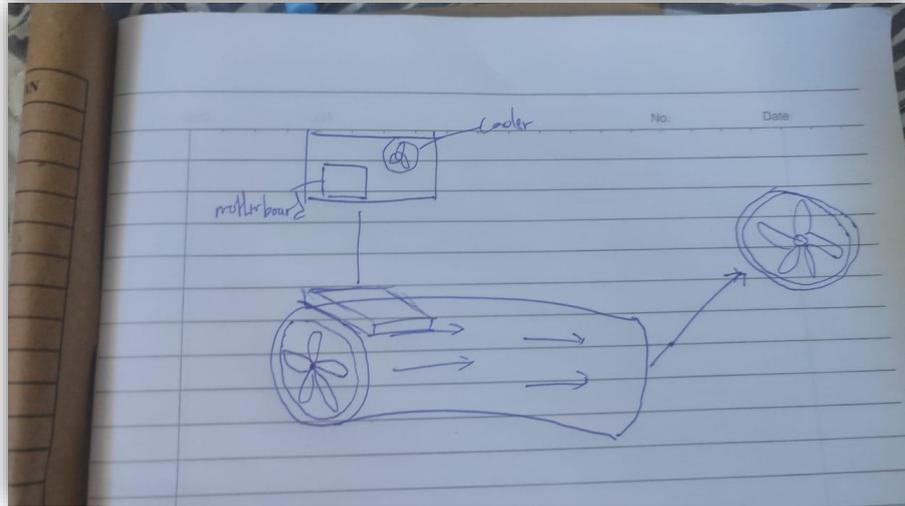
3.2) FLOW CHART



3.3) FLOW CHART EXPLANATION

PROJECT SKETCH :

We had drawn the design on paper to produce a suitable design.



PROJECT SKETCH USING AUTODESK FUSION 360 :

Once we got the right design result for the project we drew and sketched in the software called Fusion 360.



FIGURE 1A :

Components at the top are the cooler and motherboard for IoT.

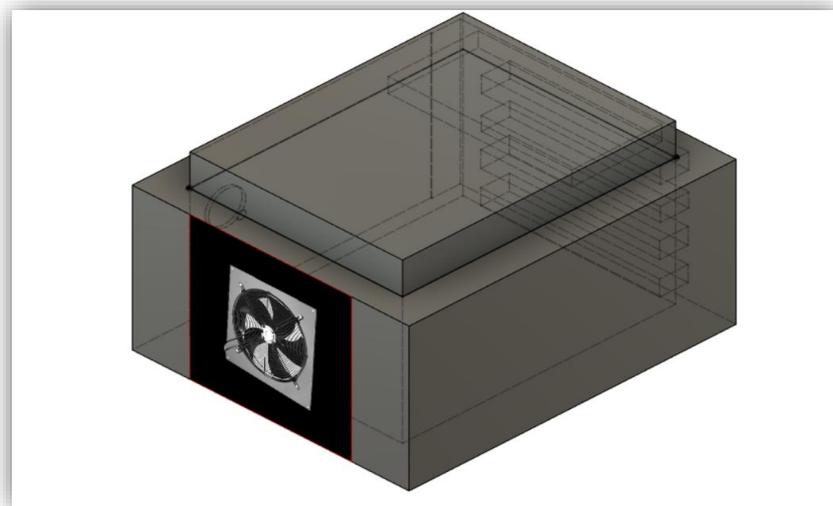


FIGURE 1 :

The shape and size of the project for Air Vacuum.

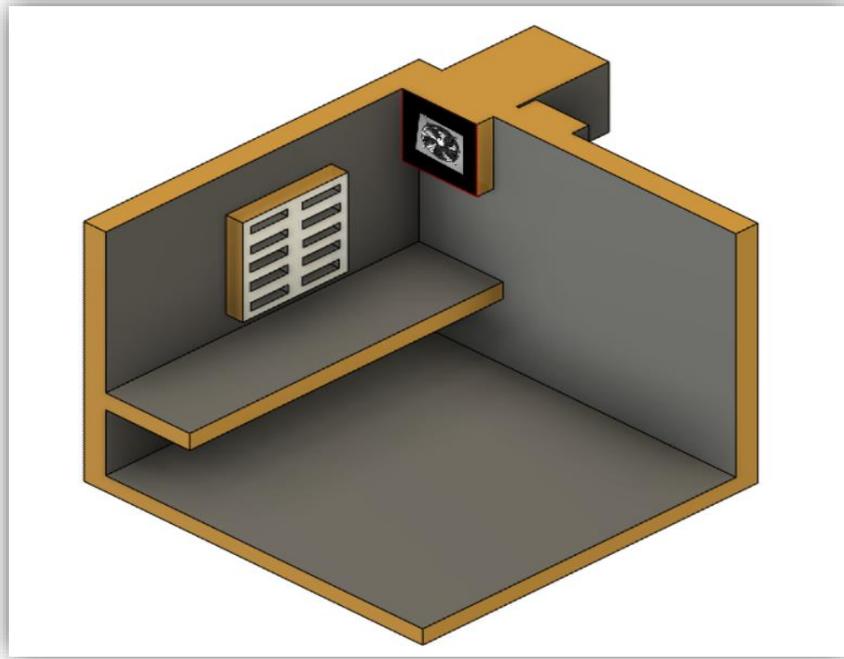


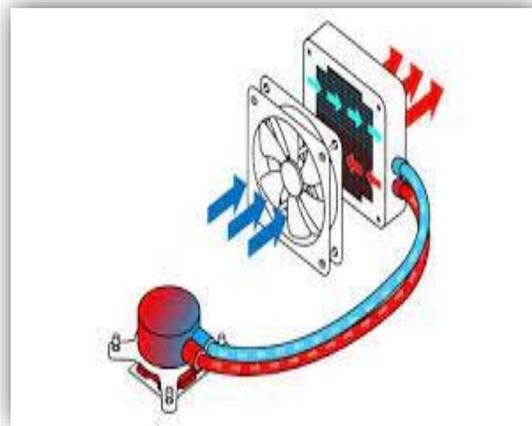
FIGURE 2 :
Example of a kitchen to put air vacuum

AVAILABILITY AND COSTS :

In the manufacturing process, the cost we used is below than rm50 for prototype.

SELECTION AND PREPARATION MATERIALS :

Materials Used And Costs For The Production Of Prototype Air Vacuum Technology.



Liquid cooler :

The coolant absorbs heat from the base plate as it moves through the water barrier. It then continues to move through the system and up through one of the two tubes to the radiator. The radiator exposes the liquid to air, which helps it cool, and a fan mounted on the radiator then diverts heat from the cooler. The refrigerant then re-enters the water barrier, and the cycle begins again.



Smoke Detector :

A smoke detector must be capable of responding to smoke from both smoldering and flaming combustion, because the smokes from these fires are significantly different in structure and composition .Smoke from a smoldering fire tends to have bigger particles of combustion products than those generated from flaming combustion. The detector may be located at the sensing location (spot detector) or at a remote location with the smoke pumped to the detector.



Exhaust fan :

The main purpose of having an exhaust fan is to remove heat.

PROJECT INSTALLATION : For how to install we used a small box and a small exhaust fan as our prototype test.



DATA COLLECTION :

The information obtained from scientific books and internet resources can be used in the improvement of future projects. As a result of observation and research, the method used to make **Air Vacuum Technology** has many disadvantages in terms of the electronic components adopted. As a result of this method, it will make it easier for technological equipment to be damaged quickly if misconnected or misplaced. Therefore, it is necessary to study the components first so that there is no waste and damage.

3.3) BACKGROUND RESEARCH



Fusion 360 is a commercial computer-aided design (CAD), computer-aided manufacturing (CAM), computer-aided engineering (CAE) and printed circuit board (PCB) design software application, developed by Autodesk. It is available for Windows and macOS, with simplified applications available for Android and iOS. Fusion 360 is licensed as a paid subscription, with a free limited home-based, non-commercial personal edition available.

3.4) SUMMARY OF CHAPTER

After researching about the research methodology, a lot of information can be gathered about Air Vacuum Technology. This information provides a reference on the design concept, dimensions and cost estimates that will be used in the production of the project. This information is also very useful as a guide to help simplify the design process and also develop smart vacuum prototypes.

Take explain detail

CHAPTER 4

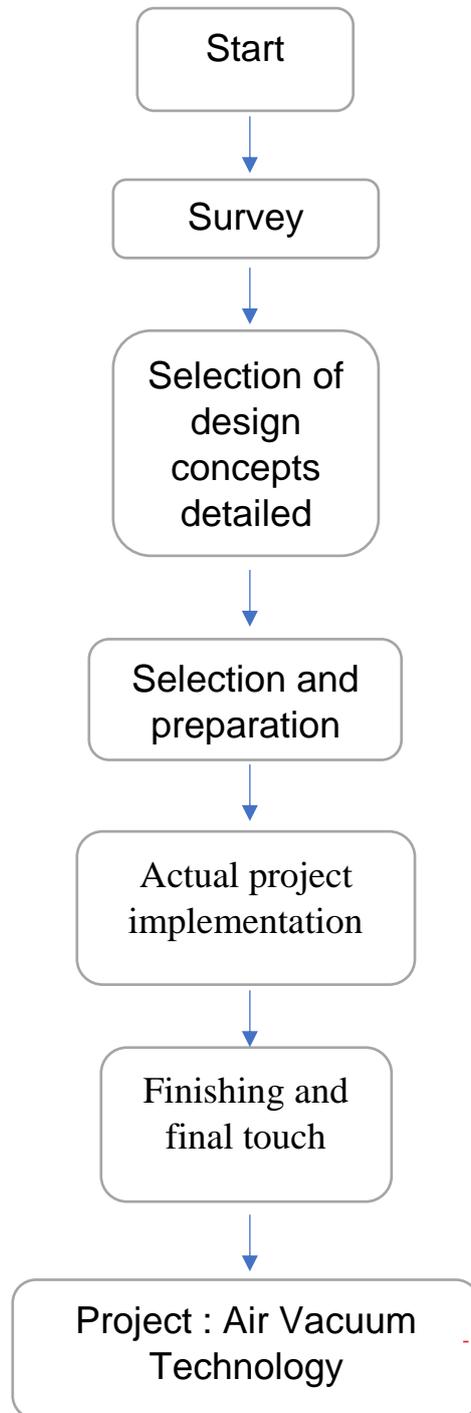
RESULT AND FINDINGS

4.1) CHAPTER INTRODUCTION

The process of building a project can use that knowledge we have learned before reality. For example, the knowledge that has been applied in this project is laptop assistance design using fusion 360 software, tool applications, and so on. The project has been built through a flow chart it is possible to promote after the test is done.

After the project was successfully produced, it turned out to be beneficial to students and lecturers. It was proven after the test was run. Test and analysis results are described in this chapter.

4.2) FLOW CHART

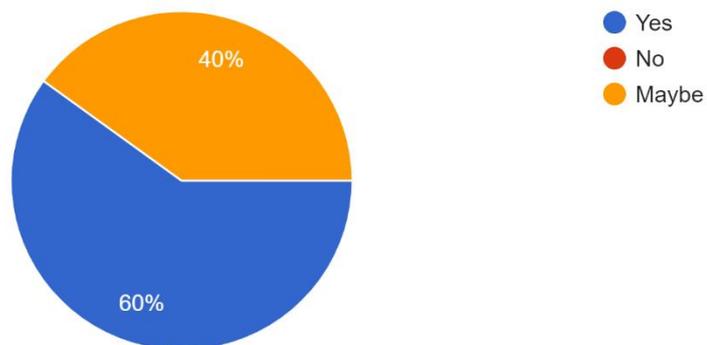


4.3) FLOW CHART EXPLANATION

Survey : A survey was conducted to 20 participants to identify the specifications of the Air Vacuum Fire Technology.

Do you believe that Air Vacuum is the future of technology for fire system?

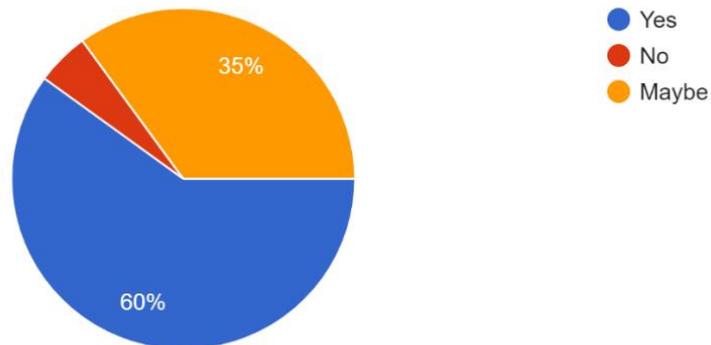
20 responses



According to the data obtained from the survey, we found that 12 out of 20 respondents think that Air Vacuum fire technology could be the future technology for fire systems 40% (8 respondents) respondents may this technology could be the future technology for fire systems. and 0% or 0 respondents who stated no.

Do you think the Air Vacuum option is more reliable than a regular Exhaust Fan system?

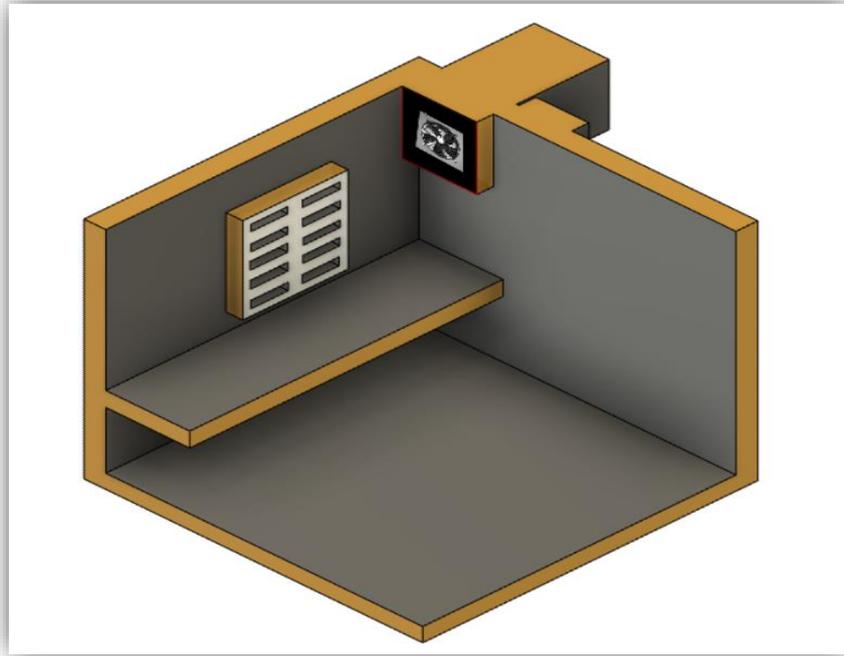
20 responses



The purpose of asking this question is to find out whether the system's normal exhaust fan is still relevant for use or not. From the results of the survey conducted, As we know from the respondents, (60%) 12 respondents agreed that the Air Vacuum system of choice is more reliable. Some of them consider it possible or unbelievable i.e. each may be (35%) 7 respondents and not (1%) 1 respondent.

SELECTION OF DESIGN CONCEPTS DETAILED :

We chose the design concept as below which was designed in software fusion 360.

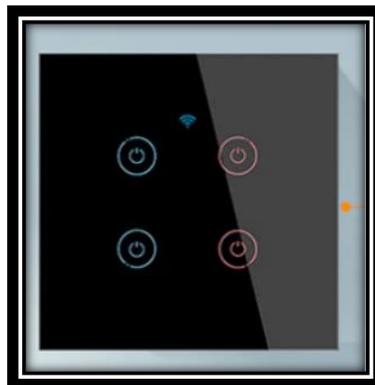


SELECTION AND PREPARATION MATERIALS



Exhaust fan :

The main purpose of having an exhaust fan is to remove heat.



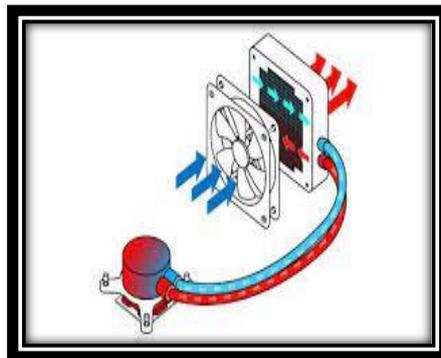
SWITCH WIFI :

SMATRUL Tuya WiFi Touch Smart Switch Light Without Neutral Wire Glass Wall EU Two-Way Control 220V Timer For Alexa Google Home **can give any microcontroller access to your WiFi network.** The SWITCH WIFI is capable of either hosting an application or offloading all WiFi networking functions from another application processor.



Smoke Detector :

A smoke detector must be capable of responding to smoke from both smoldering and flaming combustion, because the smokes from these fires are significantly different in structure and composition .Smoke from a smoldering fire tends to have bigger particles of combustion products than those generated from flaming combustion. The detector may be located at the sensing location (spot detector) or at a remote location with the smoke pumped to the detector.



Liquid cooler :

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AWG 22 SINGLE CORE WIRE (30M)

Wire gauge is a measurement of wire diameter. This determines the amount of electric current the wire can safely carry, as well as its electrical resistance and weight.



ACTUAL PROJECT IMPLEMENTATION :



The process of measuring wooden boards to follow the measured that we set to the project design



The process of cutting plan wood after being measured is set



the process of joining between pieces of play wood using screws.



the process of perforation on the wood plan for the space to place the exhaust fan



the project roof connection process



project results of air vacuum technology development

4.4) BUDGET CALCULATION

In a single manufacturing process, cost is a factor that cannot be taken lightly especially for marketing. Failure to analyze and calculate costs will cause losses. Production costs need to be properly accounted for and Exactly. In this section, all costs involved will be listed. The costs are involved are the materials to build 'Air Vacuum TEchnology'. Cost list recorded and kept for project improvement reference.

The table below shows the cost to produce a **Air Vacuum Technology** project. In this table shows the materials used with the complete price along with the units.

| Number | Material | Quantity | Total |
|--------|---------------------|----------|-----------------|
| 1. | Screw packet | 4 | RM50 |
| 2. | Wire | 1 | RM40 |
| 3. | Smoke Detector | 1 | RM45 |
| 4. | Exhaust Fan | 2 | RM40 |
| 5. | Transformer | 4 | RM50 |
| 6. | Switch Wi-Fi | 1 | RM50 |
| 7. | Plan Wood | 4 | RM100 |
| 8. | Mini Fan | 2 | RM10 |
| 9. | Socket 3 Pin Plug | 4 | RM 32 |
| 10. | 3 core Power Supply | 1 | RM 8 |
| 11. | Cable | 6 | RM 60 |
| 12. | Adapter | 4 | RM 32 |
| | TOTAL | | = RM 517 |

4.5) THE IMPORTANCE OF RESEARCH

This research is important because :

1. Show the differences before and after the existence of Air Vacuum Technology.
2. Show students the importance of Air Vacuum Technology.
4. To show the benefits of this Air Vacuum technology.

4.6) SUMMARY OF CHAPTER

From the test results, we know that Air Vacuum Technology has very a good function for sucking and removing smoke that has accumulated in a place such as a building and housing. With the collected results showing a positive of supervisor. If this product can be promoted and used for everyone and it can benefit more to all parties.

In addition, the use of this product provides many benefits to the community as well as related special users who use exhaust fans. The effect can be seen especially in enclosed houses or buildings, smoke easily escapes quickly. Based on a comparison of previous findings and after the application of Air Vacuum Technology, the work process of the smoke extractor is performed by students are more effective and produce more accurate work materials size. In addition, lecturers can also implement the process measure student work results more efficiently and save time.

No research data

CHAPTER 5

DISCUSSIONS AND CONCLUSIONS

5.1) INTRODUCTION OF CHAPTER

For this chapter, decisions have been made based on all those decisions derived from the experiments conducted and the discussion in the chapters previously namely chapters 1,2,3 and 4. In this chapter also, the relevant matters are regarding the objectives of the study as well as recommendations for the study conducted. In addition, conclusions and discussions will be made in this chapter for the experiment next.

5.2) DISCUSSION

The exhaust fan and Wi-Fi Switch must be selected precisely and suitable for connection with other components set to function and control properly. in addition, the smoke detector must be selected wire type in order to connect with the exhaust fan successfully.



5.3) CONCLUSION

After using a period of almost a year to complete the study and survey. The projects we build depending on the objectives and research are “AIR VACUUM TECHNOLOGY” and we have successfully completed the task on time depending on the Gantt Chart we planned in the first week. Throughout the creation process, we have learned many useful things knowledge and experience the process of finding problems in the project and its solution to solve it. The knowledge learned will be very useful in the future when we start working.

The problem we face is how to do time management, research for project - related information, how to apply the Internet Of Things (IOT) to the project. In addition, making project sketches is also a learning process. The knowledge that can be learned while making sketches includes methods of measuring, punching, wiring and accordingly. Through the project can show the application of knowledge that has been studied in the previous semester.

Discuss the problems faced by the project designed to solve the problem smoke statements accumulate somewhere in buildings and houses and facilitate machining process while making machine assignments. Also, be aware of the challenges you may face happening in the future is also a factor why it is necessary to have discussions after the project is completed. The results while discussing this chapter found that the challenges to be faced when the time comes.

The challenge encountered during the discussion was that if the outcome of this project did not work during no electricity we would use a supply battery.



5.4) SUGGESTION

Throughout the process of creating this project to solve the problem of unsuitable volt equipment causing the project to not work. The result of the discussion came out with new challenges will be faced by such projects in the future.

The challenge that will be faced by this project is that the volts are not the same as other currents causing this project to not be able to function properly. The method used to make this project is to replace the appropriate appliance with the appropriate volt. There are many other ways to improve this project one of which is to replace the supply battery with a solar system to generate more electricity than using a supply battery. In addition, using a solar system is an option. the best because of its low maintenance costs and ever -evolving technology development.

5.5) SUMMARY OF CHAPTER

The development of this innovation has enabled students to understand the concepts and methods of implementing an Internet Of Things (IOT) system. Supervisors will also be able to review workflows and projects tools and tools more quickly, easily, consistently and accurately.

Indirectly, the process of creating a DEVELOPMENT OF AIR VACUUM TECHNOLOGY project to train students to think creatively and critically as well as be competitive in producing projects using IoT systems by following proper procedures.

This innovation can be widely practiced by using iot systems for future generations in order to develop more advanced technologies

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APPENDICES

PROJECT 1 ACTIVITY : GANTT CART :

This is an example of a gantt chart that we do on a weekly basis to find information and do a review on the title of our research project this semester.

| WEEK/ PROJECT ACTIVITY | W1 | W2 | W3 | W4 | W5 | W6 | W7 | W8 | W9 | W10 | W11 | W12 | W13 | W14 |
|--|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|
| Title introduction & group selection | | | | | | | | | | | | | | |
| Selection idea for final years project | | | | | | | | | | | | | | |
| Search information about project | | | | | | | | | | | | | | |
| Introduction of the project. Define problem statement. | | | | | | | | | | | | | | |
| Search literature review | | | | | | | | | | | | | | |
| Research methodology | | | | | | | | | | | | | | |
| Present slide to lecturer about the project | | | | | | | | | | | | | | |
| Writing the project proposal | | | | | | | | | | | | | | |

PROJECT 2 ACTIVITY : GANTT CART :

| WEEK/ PROJECT ACTIVITY | | W1 | W2 | W3 | W4 | W5 | W6 | W7 | W8 | W9 | W10 | W11 | W12 | W13 | W14 |
|---|---|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|
| Discuss and planning about the Project 2 | P | | | | | | | | | | | | | | |
| | A | | | | | | | | | | | | | | |
| Divide the task to purchase the necessary component items | P | | | | | | | | | | | | | | |
| | A | | | | | | | | | | | | | | |
| Collect designated project items | P | | | | | | | | | | | | | | |
| | A | | | | | | | | | | | | | | |
| Plan for the manufacture of the project connecting the specified components | P | | | | | | | | | | | | | | |
| | A | | | | | | | | | | | | | | |
| Test and identify problems on the project | P | | | | | | | | | | | | | | |
| | A | | | | | | | | | | | | | | |

