SMOKE AND GAS DETECTOR

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Last but not least, not to forget our friends and family who had encouraged and supported us both emotionally and financially to complete this project successfully.

ABSTRACT

The current project intends to create a smoke and gas detector which is much needed in curbing the issue of students smoking in college toilets. The main objective of the current project is to provide a convenient system for the college authorities to detect and reduce smoking in toilet among students. Moreover, with the smoke and gas detector, there is no need for 24/7 observation for college authorities to catch students who smoke in toilet. The smoke and gas detector acts as an alert for smoking in toilet. It becomes the better and safer alert which comes with lesser human error. With this smoke and gas detector, authorities can be directly informed with any smoking cases among students which does not delay the response time and allows authorities to react immediately. This idea of creating smoke and gas detector is also to increase the awareness about the importance of reducing and curbing smoking habit among youngsters especially students. Among the materials used in the project are resistors, sensor, transformer, light emitting diode (LED), gas sensor, PCB board, GSM module, Tibox plastic control panel, switch, arduino, buzzer, voltage regulator and software (Proteus). To carry out the procedures of this project, a strategic mind map was drawn out as guidance throughout the project. Overall, this smoke and gas detector worked during the trial and successfully supported the project's objectives. As intended, the smoke and gas detector did not fail to alert and save individual's response time when a smoke is presented near the detector.

ABSTRAK

Projek ini bercadang untuk mewujudkan pengesan asap dan gas yang amat diperlukan di menangani isu pelajar merokok dalam tandas kolej. Objektif utama projek ini adalah untuk menyediakan sistem yang mudah untuk pihak berkuasa kolej untuk mengesan dan mengurangkan isu merokok di tandas dalam kalangan pelajar kolej.Selain itu, dengan pengesan asap dan gas, pihak berkuasa tidak perlu memerhati 24/7 untuk menangkap pelajar yang merokok di dalam tandas. Pengesan asap dan gas bertindak sebagai amaran atau isyarat untuk pihak berkuasa mengetahui aktiviti merokok didapati di dalam tandas. Ia menjadi amaran yang lebih baik dan lebih selamat dan mengurangkan peluang kesilapan manusia berlaku. Dengan pengesan asap dan gas, pihak berkuasa boleh terus dimaklumkan tentang sebarang kes merokok dalam kalangan pelajar yang tidak melambatkan masa tindak balas dan membolehkan pihak berkuasa untuk bertindak balas dengan segera. Idea ini untuk mewujudkan pengesan asap dan gas adalah untuk meningkatkan kesedaran tentang kepentingan mengurangkan dan membendung tabiat merokok di kalangan anak-anak muda khususnya pelajar. Antara bahan yang digunakan dalam projek ini ialah perintang, pengesan, transformer, diod pemancar cahaya (LED), pengesan gas, papan PCB, modul GSM, Tibox panel kawalan plastik, suis, arduino, loceng, pengatur voltan dan perisian (Proteus). Untuk menjalankan prosedur projek ini, peta minda strategic telah dirangka sebagai panduan sepanjang projek. Secara keseluruhan, pengesan asap dan gas berfungsi semasa sesi percubaan dan berjaya menyokong objektif projek ini. Seperti yang dijangka, pengesan asap dan gas ini tidak gagal untuk member amaran dan menjimatkan masa tindak balas individu apabila asap telah diletak berdekatan dengan pengesan.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Project is a subject where all the Polytechnic Seberang Perai students must learn and all the students will learn in the subject seminar. The project report needs to be done in semester 5 and the project will be made in semester 6. Students in polytechnic must do a good project to pass their certificate in diploma with flying colours.

Every student will be given one year or two semesters to conduct their project. The reason it is divide to two semesters is to let student have enough time to complete their project properly.

At semester 5, that is during seminar, student are asked to plan their objective, problem statement, project scope and design of the project. They need to get well prepare in semester 5 in seminar, so went student reach semester 6, the project that plan in semester 5 can be build up. Also during the end of semester 5, about the 18th week, they already need to present their project in front of the panel.

Besides that, we also need to find our supervisor to guide us during the whole process. The supervisor needs to find at 3th week after semester 5 start. The supervisor will guide and give advice to student in order the student can complete their project.

When the student reaches semester 6 they will buy the part and device that needed to build contract and test run their project. When the project has fully built up, they need to take the result of their project for write in their report.

Finally, the students need to present their project and make their system work in front of the panel. The purpose of the subject is to let student apply the entire thing that they have learn during lesson in polytechnic. They can put use of things they learn in the project they did. The systems that are apply shows that they understand what they learn and can make use of the system. The project can make student to be more skill-full.This is prove by they can assemble the project or the whole system out and not say by theory only. Project can train the student to have the skill for the requiring task or job.

Another benefit of the project is to train critical thinking of the student. For example, student need to think about the concept of project and what system need to use that can make the system or project work according to what they have plan. If during the project there is error or problem occur that making the system failed to work properly, they need to overcome the problem by their critical thinking.

During the project, students will plan their timetable to finish their project on time. Furthermore, the students also will do costing to minimize their budget during their project is be done.

As conclusion, subject project can help student a lot when they come out to the working field. They have the skills, ability and mind to do a task or job that given. So, Polytechnic SeberangPerai set this subject as a must to the students that are taking their diploma.

1.2 PROBLEM STATEMENT

A smoke and gas detector is a one line of defense a home can provide against from smoke or gas burst. The difference between the latter two states is that without observing and inspecting, authorities can now detect smoking issues in the college toilet from the place they sit.. These devices are mainly placed at the toilets but it is efficient and convenient to be used at other places such as home, office or companies. If the smoke and gas detector detects smoke or gas leakage, an alert will be sent to the authorities' mobile phone. This helps the authorities to detect students smoking in the toiletwithout having to keep an eye all the time. The smoke and gas detector sends a notification in the form of message (SMS) to the authorities via smartphone. So this could help the authorities to trap the students who are smoking in the toilet. The alarm will continue to ring until the system manually turnsoff.

1.3 OBJECTIVES

a. Smoke and gas detector intends to detect and reduce smoking habit among students in the college toilet. There is less chance of human error with this smoke and gas detector.

b. Smoke and gas detector aims to prevent home from emergencies such as if there is a fire accident or gas leakage in the house.

c. Smoke and gas detector intends to have a quicker emergency response time because they cut out the middle man and directly contact authorities without any further delay.

1.4 SCOPES AND LIMITATIONS

Smoke and gas detectors can be used to detect smoke, fire and gas. You can connect them on the cellings of your building or to an alarm system so it will warn you when there is any smoke, fire or gas leakage in the building. Best of all, most of these gas detectors can be activated or deactivated at will – this means you can turn on and off the detector according to our necessity.

1.5 IMPORTANCE

One should consider installing a smoke and gas detector at college, home or office because it offers protection and helps to reduce smoking habit among students in college. ***Colleges with smoke and gas detector*** installed has higher chance to reduce the smoking habit among students as it is convenient and efficient to produce the result. This indicates that the mere presence of smoke and gas detector is enough in most cases to detect smoke, fire and gas leakage and itprevents from an accident. Having a smoke and gas detector provides individuals with enough warning or signal about the smoke, fire or gas detected as soon as they are detected.

1.6 SUMMARY

The report contains 6 chapters. The first chapter discusses the introduction, problem statement, objectives, scope, importance and summary of the chapter. Chapter 2 discusses the background of the problems and the literature review. Then in Chapter 3, it tells about the methodologies to solve the problems of the project. Methodology is a study that describes the methods or approaches used in solving the problems of the project. Examples of how the methodology we use is to create a flow chart. Flowchart been told about our plans before, during and after we complete the project. In addition, this chapter also contains Gantt chart project planning. In the Gantt chart been told from the beginning of the week to week presentations. In Chapter 4, the project analysis is discussed. In Chapter 5, further suggestions to improve the current project and the conclusion are stated. Lastly, the references used in the current project are listed.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Security has been a major issue where accidents related to smoke, fire or gas is increasing and everybody wants to take proper measures to prevent accident. According to Liu (2003), there has been a massive improvement on fire detection technologies over the past decade due to the advances in sensor, microelectronics and other technology-related components. In addition, there is need to mechanize a device so that the user can take the advantage of technological advancement. Correspondingly, Mahdipour, & Dadkhah (2012) stated one of the simplest method to sense a fire or smoke emergency at any places is by using a smoke detector which is susceptible to ionization. Keeping in view the rapid growth of wireless communication we are inspired by the usage of arduino as previously done in many other similar projects (Schwartz, 2014). The idea behind this project is to meet the upcoming challenges of the modern practical applications of wireless communication and to facilitate our successors with such splendid ideas that should clear their concept about wireless communication and control system (Chen, Hovde, Peterson, & Marshall, 2007). Traditional security system signals through alarm however, the applications of SMS/GSM based security system are quite diverse (Singh, Yadav, Singh, & Dubey, 2014). There are many real life situations that require control of different devices remotely and to provide security. There will be instances where a wired connection between a remote appliance/device and the control unit might not be feasible due to structural problems (Litton, 2009). In such cases, a wireless connection such as Global System for Mobile communications (GSM) is a better option (Singh, Yadav, Singh, & Dubey, 2014). GSM based security system supplies developed security as whenever there is a signal from the sensor, an automatic text message will be sent to the authorized number to be able to take an immediate and necessary action (Singh, Yadav, Singh, & Dubey, 2014). GSM-900 and GSM-1800 are commonly used GSM frequency bands in most parts of the world including Asia (Hanzo, 2008).

The current project presents a model that will help colleges to detect smoking habit of students in college via SMS using the GSM technology stated. Basic Idea of our project is to provide GSM Based security even if the college authority is away from the college. For this we adopted wireless mode of transmission using GSM. Besides that, there are many methods of wireless communication but we selected GSM in our project because as compared to other techniques, this is an efficient and cheap solution also, we are much familiar with GSM technology and it is easily available.

2.2 PROJECT SURVEY

The researchers gathered information from different sources which give appropriate ideas or what parts to be used in every circuitry involved in this project. Keypad interfacing to microcontroller using embedded C was the hardest part ever encountered during the development stage. From a step by step process, researchers started from writing simple code to more complex. After everything is fixed and tested in virtual simulation, the researchers soldered everything for implementation stage. Researchers faced many problems on hardware such as fine tuning every sensor to work simultaneously with the burnt program inside the microcontroller. By eliminating those problems gives good and accurate anticipated result. Same project could have been designed with: ARDUINO.

Using an Arduino simplifies the amount of hardware and software development you need to do in order to get a system running. The Arduino hardware platform already has the power and reset circuitry setup as well as circuitry to program and communicate with the microcontroller over USB. In addition, the I/O pins of the microcontroller are typically already fed out to sockets/headers for easy access (This may vary a bit with the specific model).On the software side, Arduino provides a number of libraries to make programming the microcontroller easier. More useful are things such as being able to set I/O pins to PWM at a certain duty cycle using a single command or doing Serial communication. The greatest advantage is having the hardware platform set up already, especially the fact that it allows programming and serial communication over USB.

After reviewing the possible solutions, my team decided to use ARDUINO UNO to make this project. According to the advantage of ARDUINO over other Microcontrollers, we made this decision.

2.3 ANALYSIS OF THE ISSUE OF PROJECT

With all the necessary background research completed it became clear what basic design components the entire system would require. First we needed the power to be supplied to the designed model which will turn on the components. Then, if a student enter the college toilet and smoke by the smoke and gas detector, then microcontroller will generate the message and will send the message to the authorized user using the GSM modem. In case, the temperature inside the college toilet increases beyond limits then also Arduino will perform the same operation.

CHAPTER 3
METHODOLOGY

3.1 INTRODUCTION

Methodology can be defined in two different ways. According to Kothari (2004), it can be defined as the analysis of the principles of method, rules, and postulates employed by a discipline. It can also be defined as the systematic study of method that is, can be, or have been applied within a discipline (Kothari, 2004)

It should be noted that methodology is frequently used when method would be more accurate. In this instance the methodology is gathering data via surveys, and the assumption that this produces accurate results.

Methodology includes the following concepts as they relate to a particular discipline or field of inquiry such as a collection of theories, concepts or ideas, comparative study of different approaches, critique of the individual methods (Kumar, 2008).

According to Kumar (2008), methodology refers to more than a simple set of method; rather it refers to the rationale and the philosophical assumptions that underline the particular study. This is why scholarly literature often includes a section on the methodology of the researchers.

This section does more than outline the researchers' method and it might explain what the researchers' ontological or epistemological views are. Another keys usage for methodology does not refer to research or the specific analysis techniques.
This is often refers to anything and everything that can be encapsulated for a discipline or a series processes, activities and tasks. Examples of this are found in software development, project management and business process fields. This use of the term is typified by the outline who, what, where, when, and why.

In the documentation of the processes that make up the discipline that is being supported by this methodology that is where we would find the methods or processes. The processes themselves are only part of the methodology along with the identification and usage of the standards, policies, rules, and etc.

3.2 PROJECT DESIGN

The current project was completed using a technical and experimental method in which a smoke and gas detector is created using specific materials and instruments.

3.3 STAGES OF METHODOLOGY

3.3.1 Etching Process

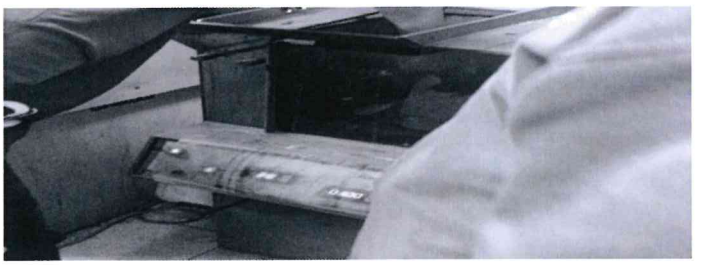

Figure 3.3.1.1

Etching is a technique used to quickly make professional looking PCB's with limited resources. This technique is excellent for both through-hole components and surface mount devices, and the copper tracks can be as thin as 8mil to 10minl. This etching process uses Hydrochloric acid which can be hazardous if handled carelessly. Take necessary precautions. Wear gloves, goggles, nose mask, and etch the board in open and ventilated space as the gas generated might be harmful. Once etching process is complete, store the mixture in a safe place so that it can be reused and follow the hazardous rules.

3.3.2 Soldering

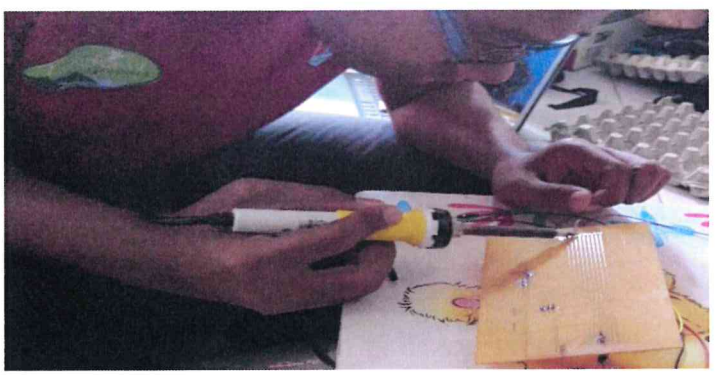

Figure 3.3.2.1

Soldering neatly is to ensure proper circuit function. If the soldering is not neat, not polished or even not perfect, perhaps the function of the circuit will be interrupted. Oneway to make a good soldering by using solder paste. Just rub a little on the spot to be soldered, then solder as usual. The result is certainly satisfying even though it will produce a slight puff of origin. Keep some distance between your face and nose of this effect. The recommended solder

paste used for wire tacking and connectivity components to the printed circuit. To strip board is not recommended because it will make the board surface greasy and can cause the circuit function is impaired. Build on the strip circuit board with solder paste and produce faulty circuit does not work despite the perfect soldering result.

3.4 INSTRUMENTS REQUIRED

3.4.1 RESISTOR

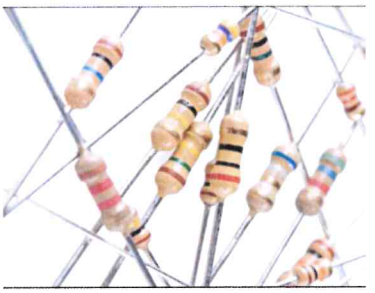

Figure 3.4.1.1

A resistor is a passive two-terminal electrical component that implements electrical resistance as a circuit element. In electronic circuits, resistors are used to reduce current flow, adjust signal levels, to divide voltages, bias active elements, and terminate transmission lines, among other uses. High-power resistors that can dissipate many watts of electrical power as heat may be used as part of motor controls, in power distribution systems, or as test loads for generators. Fixed resistors have resistances that only change slightly with temperature, time or operating voltage. Variable resistors can be used to adjust circuit elements (such as a volume control or a lamp dimmer), or as sensing devices for heat, light, humidity, force, or chemical activity.

Resistors are common elements of electrical networks and electronic circuits and are ubiquitous in electronic equipment. Practical resistors as discrete components can be composed of various compounds and forms. Resistors are also implemented within integrated circuits. The electrical function of a resistor is specified by its resistance: common commercial resistors are manufactured over a range of more than nine orders of magnitude. The nominal value of the resistance falls within the manufacturing tolerance, indicated on the component.

3.4.2 SENSOR

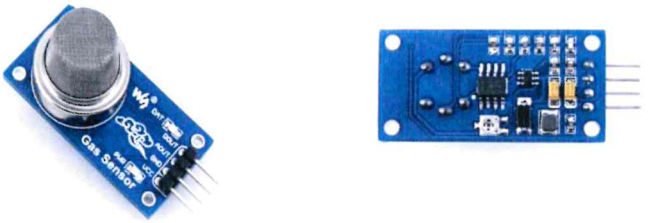

Figure 3.4.2.1

A sensor is a device that measures a physical quantity and converts it into a 'signal' which can be read by an observer or by an instrument. For example, a mercury thermometer converts the measured temperature into the expansion and contraction of a liquid which can be read on a calibrated glass tube. Video cameras and a digital cameras have an image sensor.There are many different types of sensors. Some are used in everyday objects, and some are separate.

3.4.3 TRANSFORMER

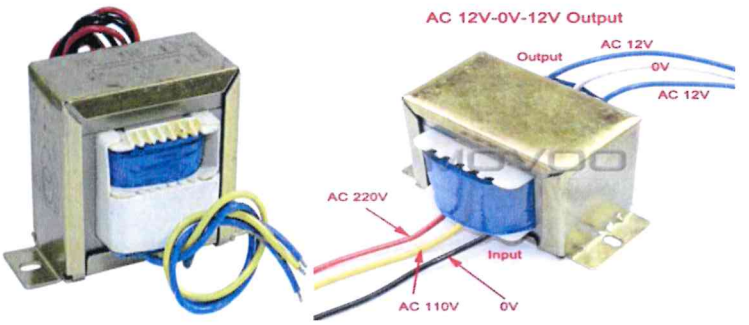

Figure 3.4.3.1

A transformer is an electrical device that transfers electrical energy between two or more circuits through electromagnetic induction. Electromagnetic induction produces an electromotive force within a conductor which is exposed to time varying magnetic fields. Transformers are used to increase or decrease the alternating voltages in electric power applications. A varying current in the transformer's primary winding creates a varying magnetic flux in the transformer core and a varying field impinging on the transformer's secondary winding. This varying magnetic field at the secondary winding induces a varying electromotive

force (EMF) or voltage in the secondary winding due to electromagnetic induction. Making use of Faraday's law (discovered in 1831) in conjunction with high magnetic permeability core properties, transformers can be designed to efficiently change AC voltages from one voltage level to another within power networks.

Since the invention of the first constant-potential transformer in 1885, transformers have become essential for the transmission, distribution, and utilization of alternating current electrical energy. A wide range of transformer designs is encountered in electronic and electric power applications. Transformers range in size from RF transformers less than a cubic centimetre in volume to units interconnecting the power grid weighing hundreds of tons.

3.4.4. LIGHT EMITTING DIODE (LED)

Figure 3.4.4.1

A light-emitting diode (LED) is a semiconductor light source. LEDs are used as indicator lamps in many devices, and are increasingly used for lighting. Introduced as a practical electronic component in 1962, early LEDs emitted low-intensity red light, but modern versions are available across the visible, ultraviolet and infrared wave lengths, with very high brightness. Colour of the light (corresponding to the energy of the photon) is determined by the energy gap of the semiconductor. An LED is often small in area (less than 1 mm2), and integrated optical components may be used to shape its radiation pattern. LEDs present many advantages over incandescent light sources including lower energy consumption, longer lifetime, improved robustness, smaller size, faster switching, and greater durability and reliability. LEDs powerful enough for room lighting are relatively expensive and require more precise current and heat management than compact fluorescent lamp sources of comparable output.

3.4.5 PCB BOARD

Figure 3.4.5.1

A printed circuit board (PCB) mechanically supports and electrically connects electronic components using conductive tracks, pads and other features etched from copper sheets laminated onto a non-conductive substrate. Components (e.g. capacitors, resistors or active devices) are generally soldered on the PCB. Advanced PCBs may contain components embedded in the substrate. PCBs can be single sided (one copper layer), double sided (two copper layers) or multi-layer (outer and inner layers). Conductors on different layers are connected with vias. Multi-layer PCBs allow for much higher component density.

FR-4 glass epoxy is the primary insulating substrate. A basic building block of the PCB is an FR-4 panel with a thin layer of copper foil laminated to one or both sides. In multi-layer boards multiple layers of material are laminated together.

Printed circuit boards are used in all but the simplest electronic products. Alternatives to PCBs include wire wrap and point-to-point construction. PCBs require the additional design effort to lay out the circuit, but manufacturing and assembly can be automated. Manufacturing circuits with PCBs is cheaper and faster than with other wiring methods as components are mounted and wired with one single part. A minimal PCB with a single component used for easier modeling is called a breakout board. When the board has no embedded components it is more correctly called a printed wiring board (PWB) or etched wiring board. However, the term printed wiring board has fallen into disuse. A PCB populated with electronic components is called a printed circuit assembly (PCA), printed circuit board assembly or PCB assembly (PCBA). The IPC preferred term for assembled boards is circuit card assembly (CCA) and for assembled backplanes it is backplane assemblies. The term PCB is used informally both for bare and assembled board

3.4.6 GSM MODULE

Figure 3.4.6.1

Designed for global market, SIM300 is a Tri-band GSM/GPRS engine that works on frequencies EGSM 900 MHz, DCS 1800 MHz and PCS1900 MHz SIM300 provides GPRS multi-slot class 10/ class 8 (optional) capability and support the GPRS coding schemes CS-1, CS-2, CS-3 and CS-4.With a tiny configuration of 40mm x 33mm x 2.85 mm, SIM300 can fit almost all the space requirement in your application, such as Smart phone, PDA phone and other mobile device. The physical interface to the mobile application is made through a 60 pins board-to-board connector, which provides all hardware interfaces between the module and customers

boards except the RF antenna interface.

a. The keypad and SPI LCD interface will give you the flexibility to develop customized applications.
b. Two serial ports can help you easily develop your applications.
c. Two audio channels include two microphones inputs and two speaker outputs. This can be easily configured by AT command.

3.4.7 TIBOX PLASTIC CONTROL PANEL

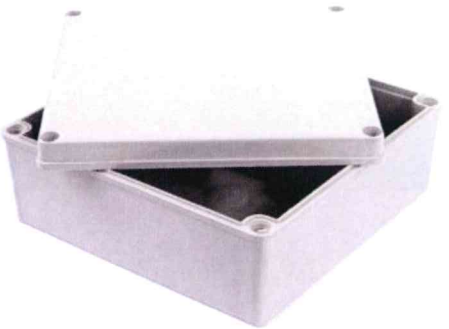

Figure 3.4.7.1

Fixed in the bottom, easier to install terminal box and other instruments parts made by industrial plastic PC, more elegant and flexible. The movable bracket designed dovetail groove from inside to the outside of the four corners. Erection column with the spin nut type, better fixed guide rail terminal box and wiring board.

3.4.8 SWITCH

Figure 3.4.8.1

A switch is an electrical component that can break an electrical circuit, interrupting the current or diverting it from one conductor to another. The mechanism of a switch may be operated directly by a human operator to control a circuit (for example, a light switch or a keyboard button), may be operated by a moving object such as a door-operated switch, or may be operated by some sensing element for pressure, temperature or flow. A relay is a switch that is operated by electricity.

3.4.9 ARDUINO

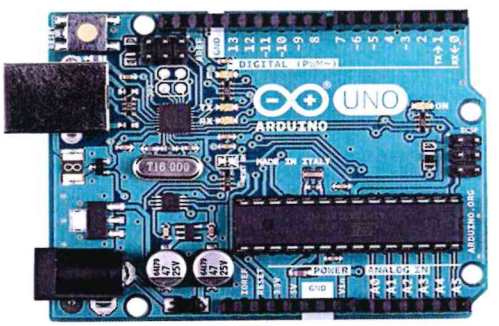

Figure 3.4.9.1

Arduino is an open-source electronics prototyping platform based on flexible, easy-to-use hardware and software. It's intended for artists, designers, hobbyists, and anyone interested in creating interactive objects or environments. Arduino can sense the environment by

receiving input from a variety of sensors and can affect its surroundings by controlling lights, motors, and other actuators. The microcontroller on the board is programmed using the Arduino programming language and the Arduino development environment. Arduino projects can be stand-alone or they can communicate with software running on a computer (e.g. Flash, Processing,).The Arduino Uno is a microcontroller board based on the ATmega328 (datasheet). It has14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

3.4.10 BUZZER

Figure 3.4.10.1

A buzzer or beeper is an audio signalling device, which may be mechanical, electromechanical, or piezoelectric. Typical uses of buzzers and beepers include alarm devices, timers, and confirmation of user input such as a mouse click or keystroke.

3.4.11 VOLTAGE REGULATOR

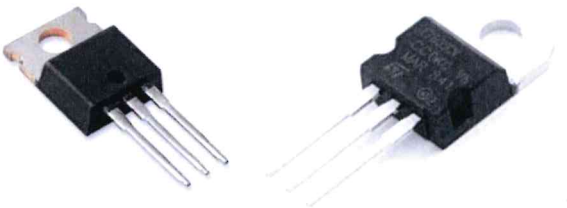

Figure 3.4.11.1

A voltage regulator is designed to automatically maintain a constant voltage level. A voltage regulator may be a simple "feed-forward" design or may include negative feedback

control loops. It may use an electromechanical mechanism, or electronic components. Depending on the design, it may be used to regulate one or more AC or DC voltages

Electronic voltage regulators are found in devices such as computer power supplies where they stabilize the DC voltages used by the processor and other elements. In automobile alternators and central power station generator plants, voltage regulators control the output of the plant. In an electric power distribution system, voltage regulators may be installed at a substation or along distribution lines so that all customers receive steady voltage independent of how much power is drawn from the line.

3.4.12 SOFTWARE (PROTEUS)

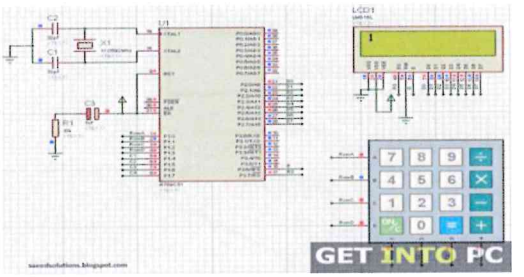

Figure 3.4.12.1

Proteus is software for PCB that also equipped with Pspice simulation in schematic level before schematic network in upgrade to PCB. Before PCB printed, software will tell PCB whether the print is correct or not. Proteus combination ISIS programmed to make schematic network design with ARES programmed to make PCB layout from schematic that in make. Software is suitable to be used for microcontroller network design. Software if in install provides many design examples of application attached and it may also help us to learn from example that is existing.

3.5 METHOD USED TO ANALYSE DATA

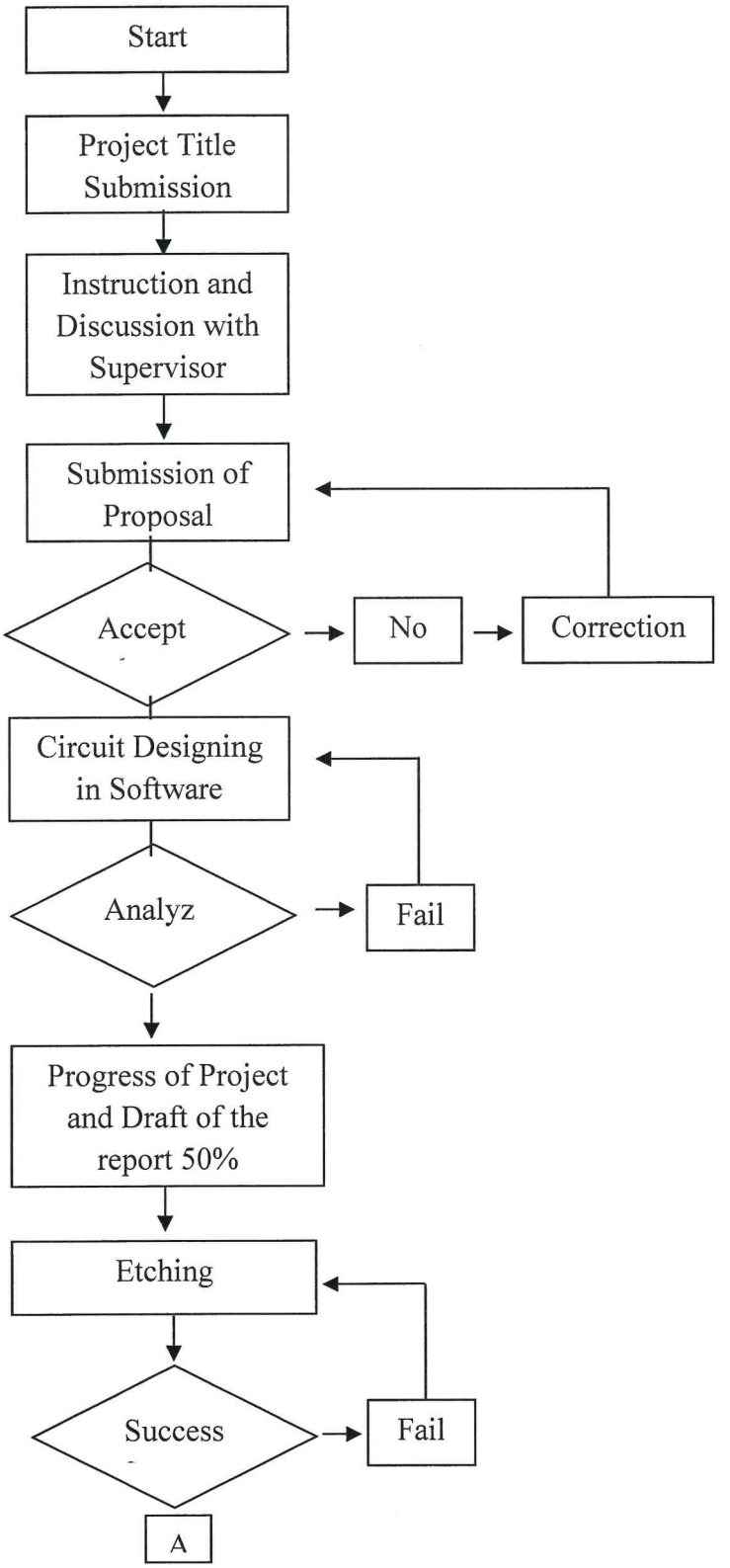

Table 3.5.1

3.6 SUMMARY

Therefore, using this methodology plan, the current project is carried out to analyze the creation of smoke and gas detector. The instruments stated are important components needed to create a functional smoke and gas detector. Following this methods, the current project proceeded to implementation of the device.

CHAPTER 4

RESULT AND ANALYSIS

This chapter will conclude all the result and analysis regarding all the specification of the application of smoke detector from the project done.

4.1 SIMULATION OF SMOKE AND GAS DETECTOR.

Purpose: To identify the effectiveness of the module

Equipment:

1. Personal Computer/Laptop
2. Arduino Uno .
3. GSM SIM900.
4. MQ-2 sensor
5. Lighter

Procedure:

1. Plug the adapter to the module
2. On the switch for the GSM
3. Press the lighter gas towards the MQ-2 sensor
4. The sensor sense the gas and sends singal to the arduino
5. The arduino triggers the GSM
6. The GSM sends the message to the phone number that already coded

4.2 PROBLEM FINDING

The status of a component can be detected by their operation that is will operation not as it supposed to be. The process of troubleshooting must follow a systematic step is:

I. Symptom analysis

II. Examine the tool

III. Examine the spoil part

IV. Examine the spoil component

V. Check the placing of the component

VI. Change the spoil component

Then check the circuit whether it is functioning or not. It is very important to check circuit again to prevent doing the same mistake again.

4.3 CONCLUSION

The smoke and gas detector is suitable to use at companies, houses and colleges. By using it, smoking problems may reduce slowly.

CHAPTER 5

SUGGESTIONS AND CONCLUSION

5.1 RECOMMENDATION

There is some room for improvement from the Smoke detector made

i. High sensitive smoke detector

The sensor that we have used is less sensitive. The range of that sensor could detect the gas and smoke is 15 – 20 feet . If we use a high sensitive smoke detectorit could sense smoke from a far distance

CONCLUSION

Smoke detector is essential in modern technology as it has many benefits in detecting smoke and gas . The benefits of this technology are mostly used in companies and institute. This process is to detect gas using MQ-5 sensor and triggers the GSM after detecting any gas or smoke leakage, and notifies the recipient.

This technology is easily available for public use and it's slightly cheap. The smoke detector found is small in size and lack portability function. These factors hold back the module from being used in one place.

As our objective states, the smoke detector built would aim to rectify the given problem statement. The smoke detector would be affordable to average consumers as it is used from recycled parts, has the capability of engraving on small material to be used for mini projects and most importantly it has the advantage of portability with its small form factor that makes it possible to be used anywhere. The product created would be ideal for mild gases and smoke, and it is user friendly.