



ELECTRICAL ENGINEERING DEPARTMENT (COMPUTER)

EE601 PROJECT 2

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FINAL REPORT

KEYPAD BASED ALARM SECURITY SYSTEM

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ABSTRACT

Keypad Based Alarm Security System is a system designed to detect intrusion – unauthorized entry – into a building or area. Security alarms are used in residential, commercial, industrial, and military properties for protection against burglary (theft) or property damage, as well as personal protection against intruders. The production of this project is to remotely manage house. With this, can typically arm and disarm security system from anywhere in the world via a web-enabled device, monitor who arrives and leaves your home.

Numerous studies show homes without security systems, when compared to those with professionally monitored systems, are up to three times more likely to be burglarized because burglars are opportunistic by nature and are on the hunt for easy targets. Homes without security systems are high on their list.

When have a home security system professionally monitored, and advertise this by displaying window stickers and yard signs, it is letting burglars know the likelihood they'll fail and be caught are very high. Meanwhile, most home insurance companies provide great discounts-up to 20 percent-when you have a home security system in your home.

In conclusion, the production of this project will help people to live a more safer and better live.

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With the God most Gracious and Merciful blessings. Thanks and praise to God for giving us strength and patience to complete our project successfully.

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CHAPTER1

1.0 INTRODUCTION

Now there are various kinds of alarm security system on the market as an example of the type of OMRON Security System, KOYO, RELIANCE and many others. The security system is an important system to the industries and house area as well. Security system coincides with the definition is to remotely manage house. This can typically arm and disarm security system from anywhere in the world via a web-enabled device, monitor who arrives and leaves

It compares the current temperature or set point and act as output for control elements. Temperature Controller is one of the applications for the control system and the whole system should be analysed for the selection of an appropriate control to use. Here are the elements that need to be taken into account in the selection of controls.

- Algorithm (on/off,proportional,PID)
- Control methods (keypad)
- Type of output (siren, servo motor)

This project uses an arduino kit in controlling the whole project. Use of an arduino kit has been able to minimize the use of other components than can reduce the cost of purchasing the components. In addition, there are various programs that can used to be programmed using arduino kit for example MPLAB, MICROSOFT VISUAL C ++ and so on. Priority program used for this project is MPLAB.

1.1 STATEMENT OF ISSUE PROJECT

Various methods can be used to control the alarm security system. However, a circuit is limited by using a method that is applied. Meaning it can't be programmed for other applications. For example, when a controller that uses the algorithm on / off it can't be converted to a proportional algorithm then use the controller to be less flexible. In addition, the low detection of any change in this system is also a major factor in causing the alarm of an area cannot be function.

1.2 OBJECTIVES OF THE PROJECT

There are several key objectives as guidelines for this project:

- Generate circuits that are sensitive to changes in temperature in the area. change temperature can be detected by using a temperature sensor.
- Controlling the temperature in the incubator even outside temperature changes.
- Build the circuit using a temperature controller temperature sensor LM 35.
- Produce a low temperature control circuit, functional, user-friendly and flexible. PIC can be programmed repeatedly in accordance with the algorithm you want to use.

1.3 PROJECT SCOPE AND LIMITATIONS

The scope or the limit of the project as a reference should be made to ensure that the implementation of the project is not out of the objectives to be achieved . The scope of the project objectives or goals are set by the project . There are:

- Improve students' skills in using the software PCB Wizard , soldering and others .
- The project is used to facilitate user
- Power Supply Circuit of 240V single phase down into parts 12V.
- To saving the use of electricity.

user cannot easily change the password

CHAPTER 2

New Pages

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter describes the main components used in producing this project . In addition, we explains the operation of circuits based on the components used.

A power supply is a device that supplies electric power to an electrical load. The term is most commonly applied to electric power converters that convert one form of electrical energy to another.

A regulated power supply is one that controls the output voltage or current to a specific value the controlled value is held nearly constant despite variations in either load current or the voltage supplied by the power supply's energy source. Electrical energy transmission systems is convert AC line voltage to DC voltage.

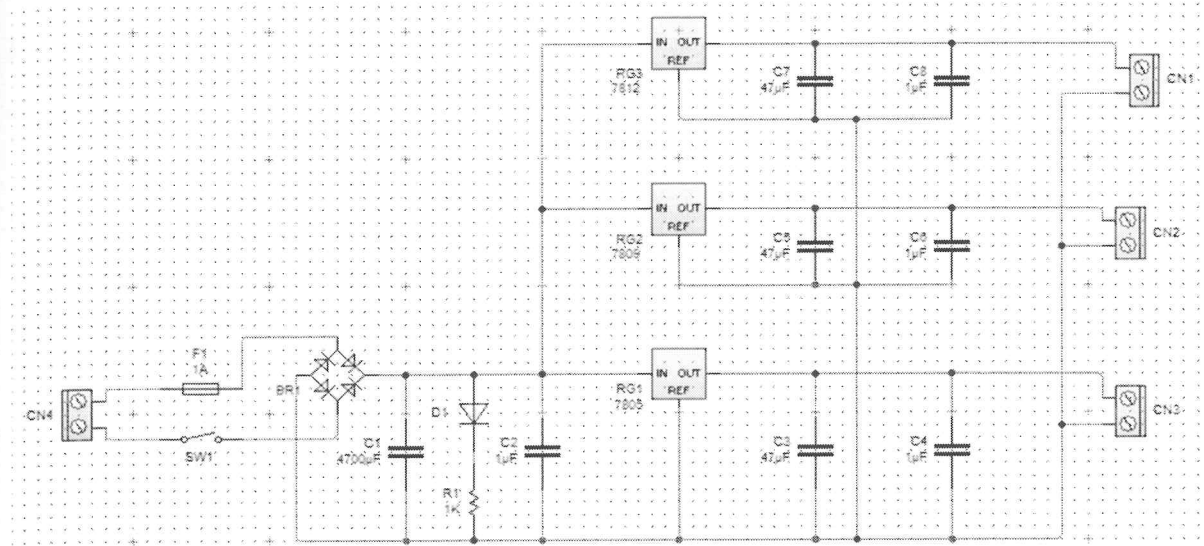


Figure 2.1: Circuit schematic power supply

The power supply circuit function switch power supply of 240V AC through and will step down transformer to 12V AC. AC current will flow through the diode and converts it to DC 12V. The power supply circuit can also adjust transformer and will stepdown to 5V, 9V and 12V AC. AC current will flow through the diode and converts it to DC 12V.

2.3 POWER SUPPLY CIRCUIT FUNCTION

Power supply is a reference to a source of electrical power. A device or system that supplies electricity or other types of energy to an output load or group of loads is called a power supply unit. The term is most commonly used on the supply of electrical energy, which is quite rare for mechanical, and rarely to others. A power supply unit has six parts:

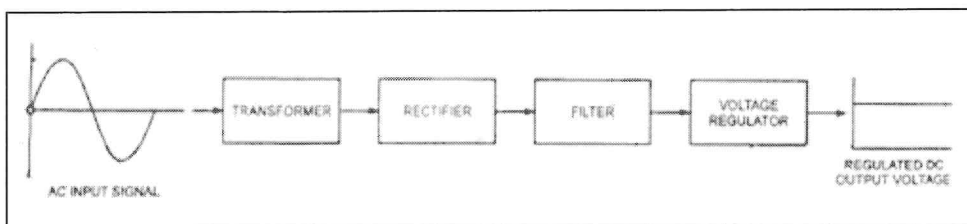


Figure 2.2: Block Power Supply

Protector: circuit breaker, if excess current such as switches and protective.

Transformers: Ascending and lower ac voltage to a desired value.

Trimming Voltage Rectifier negative or positive half-cycle to get AT throbbing.

Filters: Removing the existing AU pulse in AT AT to produce the original or half true.

Agenda: Setting the voltage level or stabilize the voltage.

Divider: Divides the voltage according to the requirements of electronic equipment.

2.4 DESCRIPTION POWER SUPPLY

Power supply units supply electricity to all parts of the electronic components. Most electronic equipment requires a power supply unit to convert the 'current' AC received from the public electricity supply to 'current' that suitable for this equipment ('AC current having a low voltage or DC). Equipment such as TV, radio, computers require a power supply unit to change the public electricity supply (240 Volt AC) to the AC supply is lower or the 'current' direct current (DC). The main function of the power supply unit is to provide enough voltage and current to an electronic device.

2.5 FUNCTIONS OF POWER SUPPLIES

i. Protector

- Switch

Serves as a circuit breaker manually. While the current supply can AU c controlled by the user to hold the power supply is not working

- Fuses

Serves as a protective overload the circuit when the current decides Sampier output exceeds a certain limit.

- Loaders

Work in two situations, namely as protector of the mortal and stabilizer voltapower factor.

- Bleeder Resistor

The aim is to expense during the actual load is shorted.

ii. Alteration

- Voltage transformer Reducer AU
Available in low power supply such as a radio receiver, oscilloscope wave generator and so on. Transformer voltage regulator 240V AC mains supply to 12 AU.

Among the types of modifiers are:

- a) Lowering rate
- b) Baking Converters
- c) Transformer Tap Dividers Central

- RENOVATION (transformer)

Transformer is used to raise and lower the voltage of the source power supply. It also serves as a separator between supply of power supply to the computer system. It aims to prevent damage in the event of a short circuit on the other side (if it occurs in the secondary loop is not Geluang affect primer). The secondary output is still alternating current. For transformers reduce the voltage at the secondary than primary-called 'step down' and transformers raise the voltage on the secondary is called 'step up'. for transformers the same primary and secondary voltage value called 'isolation transformer'. Type transformers used in power supplies is type 'step down'.

- Circuit Isolator Input And Output

Necessary when you want to touch the device with test point prob earth gauges. This is very important because prob earth gauges are usually joined with the main supply earth.

iii. Successor

- There are three types of these is the successor

- a) Single Rectifier Diodes

*Produce half-wave output

*Produce full wave.

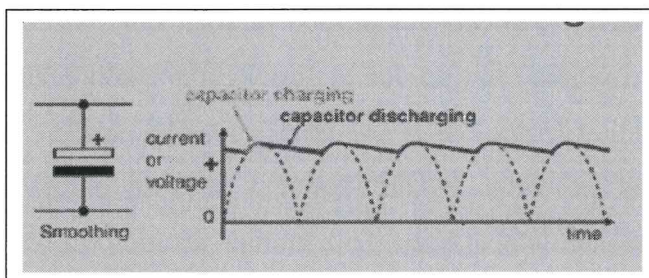
b) Rectifier Diodes Titi (DIODES equilibrium)

*Produce full-wave output and save moneySuccessor (rectifier)

The router is used to generate waveforms full or half. This wave will be used by refiners to produce wave direct current. Usually the waves produced by wave rectifier power supply is penuh.Type router used of 'bridge rectifier'. Components used for produces 4 diode bridge rectifier is compiled.

iv. FILTER

Filter component is a capacitor. If there is a shortcut it will decide fuse protection. Open capacitor can give kesa output ripple noise. Filter function as smoothly dc voltage was diterusuai to produce genuine.



- Noise Filter And Fuse

Noise filter and fuse (noise filter and fuse) it is part first passed by the Main power supply to the computer power supply.It serves to protect the security of the power supply of surplus voltage (spike) and also secure (noise) that can interfere with the line power supply and also damage the computer power supply. Filter secure (noise filter) serves to filter out noise on the line input and the fuse was used to prevent possible damage to the computer if there is a short circuit or overload on the supply power. Secure filter commonly used is "Metal oxides Varistor "(MOV).

- Filter

Filter function to filter waves produced by the rectifier for direct current wave form. It typically uses components such as capacitors and resistors

- v. Arrangement
Voltage regulator

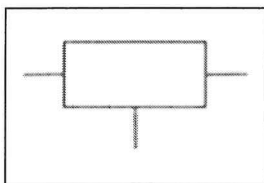


Figure 2.3: The symbol of the voltage regulator

The voltage regulator is an electrical component that is designed to maintain a constant voltage level and a constant voltage automatic . Arrangement usually based system electromechanical mechanism, or passive or active electronic components. Depending on the design, voltage regulator can be used to regulate one or more AC or DC voltage. With the exception of the shunt regulator (shunt regulator), all modern electronic voltage regulator operates by comparing the actual output voltage to some internal fixed voltage source. Any difference is amplified and used to control the regulator. This forms a negative feedback (negative feedback servo control loop) .If the output voltage is too low, the regulator will produce a higher voltage. For some regulator if the output voltage is too high, the regulator will be commanded to produce a lower voltage; however, many stopped from sourcing current and depend only on the current flow used to pull the load voltage drop. In this way the output voltage can be maintained roughly constant. Control loop must be designed carefully to produce a balance between stability and speed of response. In the power supply circuit parts are necessary and need not be known. A power supply unit contains the input to the output until. As we know, at the input consists of a unit transformer and a rectifier circuit voltage unit. Meaning, of course, the incoming voltage AC voltage of the AC supply source 3 pin plug. Then the voltage going through the transformer to reduce the amount of voltage as 12V. Rated voltage has been reduced still further AC voltage. Therefore, the voltage rectifier unit needed to convert AC to DC. After the unit rectifier circuit, has turned into a DC voltage. However to make more perfect, we need a voltage regulator circuit unit. It aims to regulate the voltage becomes stable and more pure. Some simple circuits are built voltage regulator circuit comprises a voltage regulator IC 78XX. 78XX IC is a voltage regulator IC for positive

voltage. 78 numbers are showing the regulator IC to cycle while 79 were positive and negative cycles.

vi. Voltage Dividers

Through the dc power supply unit, this requirement can be achieved by holding the voltage divider network after a highest voltage value was obtained.

2.6 REVIEW OF THE CONTROLLER USED

In this project generated, use of microcontrollers from Cytron manufacturers use. Microcontrollers from Atmel manufacturers used as easy to obtain as compared to the microcontrollers of other manufacturers like Motorola . This is because in the event of damage to the microcontroller , it's easy to find parts in the electronics shop. .

I. Microcontroller

Microcontroller is a computer-on-chip that has been created to control electronic devices. It is one of the branch micro-conscious processing operations easy and cost-effective low. This runs contrary to microprocessors various applications on the computer. Microcontrollers in general contain all the memory interface I / O for easy application while connected to the microprocessor chip to be certain to provide the required functionality.

A chip microcontroller typically have the following characteristics:

- a) Central Processor Unit - typically small and simple
- b) Interface input / output such as serial ports
- c) Peripherals such as timers and watchdog circuits
- d) RAM memory for storage
- e) ROM for program storage
- f) Clock generator - often an oscillator for a quartz crystal or a timer circuit

The merger reduces the number of chips and wires and PCB area required to produce a similar system using a separate chip. Microcontrollers found in electronic equipment. There are many processing chips available on the market. More than 50% of its compact controller while 20% were digital signal processing chip, better

known as Digital Signal Processing (DSP). Most home electrical appliance consisting of one or two multi-purpose microprocessor device while the majority consists of the microcontroller. It can be found in electrical appliances such as washing machines, microwaves and telephones.

ii) Programmable Logic Controller (PLC)

PLC is defined by the American Electrical Manufacturers Association (NEMA) as :

" A Operates Electronic digital systems used in industrial environments , which uses a memory that can be programmed for Internal Storage Up Instructions - Instructions To Perform specific functions such as logic , sequence , timing , counting and mathematical calculations to control the various machines or process Through the

Characteristic	Microcontroller	PLC
Design	Using a Small Space	Using a large space
Costs	Rates	High price
Usage	Suitable for low voltage electronic circuits	Suitable for high voltage machines
Program	Complicated to be programmed	Easy to be programmed
Spare part	Easily available	Difficult available
	Simple	Complicated

module and contributions analog or digital output "

Table 2.1 : Comparison Between ' microcontroller and PLC

In this project ' microcontroller ' selected based on its small size, low cost and suitable for use with low voltage . Although more complex to program but it was chosen because it is easily available.

2.7 RESISTOR

Resistors are electronic components that are most frequently used on any electronic circuit, electronic gadgets and electronics projects. Resistor function block or limit the voltage flowing through it. It also functions as a voltage divider. Resistors have two legs that no positive and negative pole. Connection to the circuit does not require a special connection of the foot. The value of resistance is called Ohm resistor in the form Ω . It contains values of stages as an increase to Kilo Ohm Ohm (K) up to Mega Ohm (M). Resistors can be divided into 2 types: fixed resistor and a variable resistor.

Fixed resistors that are commonly used are:

- i.) Resistors carbon composition.
- ii.) Carbon film resistors.
- iii.) The resistor wires unwound.
- iv.) Metal oxide film resistors.

Variable resistors are commonly used are:

- i.) Resistors pre-set.
- ii.) The rheostat.
- iii.) The meter effort.
- iv.) Potentiometer.

Excessive heat can cause a resistor to the resistor burns. Thus, the safe use resistors in the circuit, should know the value of the resistor. For large-size resistors, resistor values listed in