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DEE5081

Project 2

Diploma In Electronic Engineering

TITLE : WIRELESS VENTILATION CLEANER

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WIRELESS VENTILATION CLEANER

Oleh :

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PROJECT REPORT COMFORMATION

I hereby declare that the work in this report is my own except for quotations and summaries which have been duly acknowledged.

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MUHD AIMAN AFIQ BIN SHAMSUDIN IKHWAN BIN SABRI

Date : 2.10.2017 Date : 2/10/2017

Supervisor : .....

MR. SAZALI BIN HUSIN

Dedicated to ,

This project report titled "WIRELESS VENTILATION CLEANER" has been submitted, reviewed and confirmed as the meeting the condition and requirements of writing project as required.

Thanks to Allah,

For give me a good health and strength while making this report.

My beloved father and mother,

Shamsudin Bin Said & Rohani Binti Mansor ,

Who has always been my epitome of love and always pray for my strength to finish up this report.

My beloved relatives,

My siblings,

Thank you for your support and pray.

The person who has been very understanding and helpful,

Mr. Sazali Bin Husin

For the support and guidance. Hope that I always be remembered.

My unforgettable friends,

My housemate, my coursemate and all DTK students intake June 2013,

Our struggle not yet ends.

Finally, friends that always together during this third years study,

Hopefully achieved what we aspired.

ACKNOWLEDGEMENT

In the name of Allah, the Most Gracious and the Most Merciful, the utmost thanks to Allah with His Greatest power, I have successfully completed this report *Alhamdulillah.* A special acknowledgement and appreciation goes to my supervisor, Mr. Sazali Bin Husinfor his supervision, commitment, professionalism, advice and guidance in assuring my project succeed.

I also want wish the most gratitude to mom, father and family in helps me financially, advice, guidance and in spirit so that I successfully completed this final year project. Without support and inducement from them, I do not can finish my final year project successfully. Thank you I say also to my friends that also directly involved or indirect in giving advice, inducement and skills that they shared with me.

Hoped with knowledge that I own from complete my final year project, can I used in nature job later. May Allah repay their good merit that directly involved and indirect in helps me to complete this final year project. Thank you for everything.

ABSTRACT

The project report is to design and implement a wireless ventilation cleaner. The wireless ventilation cleaner is designed to make the ventilation cleaning process easier than using the manual. The idea is basically to have a relay to control such a sweeper to clean the ventilation space and deliver the output to the Arduino that will handle the movement of the wireless ventilation cleaner. By using a wireless ventilation cleaner, users can only turn on the wireless ventilation cleaner for human-controlled cleaning and can be seen through the camera. The methodology and scope of the study was carried out by conducting a literature review and research on various relay, driver motor, Arduino, and Arduino programming. The wireless ventilation cleaner will have several criteria that are efficient, orderly and user-friendly, that meet the human needs.

Wireless ventilation cleaner is a technology that is created and easy to use. As we can see, at present people do not have the time to clean the ventilation space neatly because of lack of time, and they find it difficult to handle from time to time. The difficulty of washing the ventilation space is in terms of time, size of the human body of different sizes. Therefore, this will have an adverse impact on the environment and the ventilation space will look dirty and unpleasant. wireless ventilation cleaner can clean the house more secure. It will move and roll through the camera placed on a wireless ventilation cleaner robot. wireless ventilation cleaner robot with this help, it will help people clean the ventilation room cleanly

Therefore, wireless ventilation cleaner is to help and encourage people to care for and clean the home environment easily. With the help of relays, it will act as a switch, when it is pressed means it works and when it presses the STOP button, it will stop this all is a program of arduino. This system will inspire, indirectly, involved and support the public to take responsibility for maintaining ventilation space. This is a great innovation for the whole community. This project will be implemented using Arduino UNO R3 using Arduino Software

CHAPTER 1

INTRODUCION

Before starting this project, basic arduino knowledge and knowing the component's functions that need to be done to do this project. This chapter briefly discusses the overall requirements needed to implement this project.

Hopefully the tips and suggestions will give us the tools needed to create a Wireless Ventilation Cleaner. Cleanliness can prevent any disease. Using the ventilation space cleaning method of Wireless Ventilation Cleaner depending on the speed of the motor cleaning the impurities, the design, which consists of the essential components used, all comments must be taken into account so that the rusng cleaning process smoothly

1.0 Background of Research

In today's environment, many of us carry heavier workload than we normally do, and feel the problem. You may not be able to control your workload, but you can control how you react to it. You can choose to be overwhelmed, or you can choose to receive you today, as well as take steps to improve your situation. To overcome all situations, people need to be prepared with fresh ideas and surround ourselves in a harmonious atmosphere with their surroundings. There is a way that can help us improve and to relax our minds. It only has a Wireless Ventilation Cleaner. Now, Wireless Ventilation Cleaner can ease the work of the public

1.1 Motivation

My motivation for this project is because of the experience and inefficiencies of the system while removing their ventilation space traditionally, or my manual way. In addition, I believe that people currently take advantage of the ventilation room cleanliness

In addition, I also need to raise awareness about the importance of hygiene in the ventilation to everyone, including children, youth, parents and adults. The condition of a clean house can prevent any illness. This is because; they look down and do not have time to clean the ventilation area for work

1.2 Problem description

There are some exposures that are a problem of time constraints experienced by modern generations. To prove this, an example that can be highlighted is that the current generation is getting busy based on the cleanliness of the ventilation space is neglected and irregular with it. Wireless Ventilation Cleaner can help the current generation in dividing time between work and tidying ventilation space. In addition, the next problem is the tiredness that never disappears.

Meanwhile, other problematic issues are to save time to clean the ventilation space. It applies to Wireless Ventilation Cleaner which can clean the ventilation space by using a broom to clean the ventilation space. Additionally, when modern generation using manual-power manuals wastes time in the process of. Therefore, this Wireless Ventilation Cleaner can complete and move through the ventilation space in such a situation, the room is always clean and Wireless Ventilation Cleaner reduces the risk of safety when cleaning the ventilation space

1.3 Project Overview

Mobile Robots get special attention now a day in everyday use. Particularly cleaning the robotic app is in the hands of today and tends to be a mass market. Cleaner robots are very popular in high-class countries like Japan, America, and Europe.

Wireless Ventilation Cleaner is a portable robot with cleaning function. It is designed to make cleaning process easier for human tasks. This project is about hardware and software. Mobile robotic hardware Wireless Ventilation Cleaner consists of arduino, motor, mop and mop handle, relay module, and power distribution as well as chassis for robots. arduino and proteus software are used to write programming and simulate circuit design. To complement this mobile robot, it requires an efficient algorithmic design to allow the Wireless Ventilation Cleaner to clean the entire area.

1.4 Project Objective

The main objective of this project is to design and implement the Wireless Ventilation Cleaner robot prototype. To achieve the goal of this project, research on sensors, control circuits, motors, arduino and software should be carried out to select which parts are more suitable for this project. The project aims to meet the following objectives:

(a) Design a mobile portable Wireless Ventilation Robot.

The idea of designing the Wireless Ventilation Cleaner with the ideal base body is to clean the ventilation space in a large area and tough terrain.

(b) To establish a systematic system of control with the real situation.

In an automated robot control system it is necessary to use an appropriate algorithm. For Robot Wireless Ventilation Cleaner the algorithm design is appropriate to the required resistance conditions.

(c) To identify appropriate relays and devices.

In creating a mobile robot Wireless Ventilation Cleaner requires a suitable component for each function. a study was made to select the appropriate components for the project.

1.4 Scope of the Project

This Wireless Ventilation Cleaner will act like a medium of communication between mobile robots and people. This Wireless Ventilation Cleaner will also allow cleaning the condition of Wireless Ventilation Cleaner to complete this project comprising hardware and software works. Research needs to be done to examine each specification design, and all devices according to the project. The scope of work to be done to complete the project is divided into four.

a. Wireless Ventilation Cleaner design

Wireless Ventilation Cleaner design is important to make the goal to be achieved.

b. Design movement algorithm.

The algorithm on the planning of the movement of the desire to make autonomous robots works well.

c. Wireless Ventilation Cleaner operating system.

The operating system is about portable Wireless Ventilation Cleaner controllers and drivers, to receive and process input signals from the sensors then generate output signals to enable the actuator to work.

d. Power supply.

Power supply must support all loads.

The scope of the project is divided into several phases, which are mostly planning, researching, selecting materials, building prototypes and finally testing all built-in integrated hardware. This hardware involves the design of the mechanical parts and the prototype of the Robot Wireless Ventilation Cleaner. Mechanical parts involve chassis, drive system, relay arrangement and electrical parts involving arduino, motor driving circuit and relay interface. To design an algorithm for this project must consider barrier barriers and barrier barriers

1.4 Thesis Outline

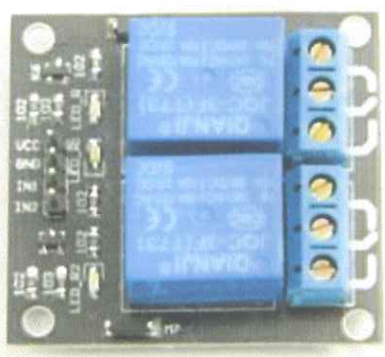
To design a mobile robot vacuum automatic function, three key elements are a must for concern, namely: -

a. Controller

- The main circuit comprises a microcontroller IC to receive specific signals from other devices (sensors) and manipulate the basic signal generating programming code and other discrete signal (digital) to implement the drive output. To enable the functions of the mobile Liquid Spills Cleaner with automatic algorithm is a list of design and design into programming code.
- The purpose of the algorithm is designed for planning and decision making movement of the robot. There are two main requirements necessary to design the algorithm, one is tracking another wall and obstacle detection.

b. Relay Module :

- The Arduino Relay module allows a wide range of microcontroller such as Arduino, AVR ,PIC, ARM with digital outputs to control larger loads and devices like AC or DC Motors, electromagnets, solenoids, and incandescent light bulbs. This module is designed to be integrated with 2 relays that it is capable of control 2 relays.The relay shield use one QIANJI JQC-3F high-quality relay with rated load 7A/240VAC,10A/125VAC,10A/28VDC.The relay output state is individually indicated by a light-emitting diode.



1.5 System Limitation

The proposed mobile robot causes a lot of vague situations. For example without the power supply, these mobile robot will not functioning due to fully dependent to the power supply. Besides, the limitation of this mobile robot is, it can only be reach by using blinking LED to represent message.

1.6 Proposed settlement

To solve the problem nowadays, I propose a smart moving robot known as "Wireless Ventilation Cleaner". "Wireless Ventilation Cleaner" is easy and convenient to use ventilation and mop vent cleaning. Rather than using traditional or manual ways to clean up the ventilation space, I suggest some ideas that inject a few smart ones for wiser with the help of the internet. I will make sure that users will be comfortable when using this "Wireless Ventilation Cleaner" as it suits them and helps people to work at home

CHAPTER 2

Literature Research

2.1 INTRODUCTION

This chapter is a collection of information related to projects to help and smart robots This chapter is a collection of information related to the project to help and intelligent robots Wireless Ventilation Cleaner This study is important to avoid mistakes during the project and understand the Arduino configuration and ensure the best results made to implement the project.

Literature review is a body of texts aimed at studying key points of current knowledge or methodological approaches on specific topics. The literature review is a secondary source, and therefore, do not report any new or original trial work.

Most often associated with academic-oriented literature, such as theses, literary reviews usually precede a research proposal and revenue share. The ultimate goal is to bring the latest readers with the latest literature on the topic and form the basis for other goals, such as future research that may be required in the area. A well-structured literature review is characterized by a logical flow of ideas; current reference and relevant to the appropriate and appropriate reference style; the use of the right term and the unbiased and comprehensive view of previous research on this topic.

Therefore, systematic and detailed planning needs to be structured to produce a complete and perfect project. The first step we need to do is design daub (sketch) to get the real image of the machine we want to produce. Because of this, the design and study work we create is a continuous process and it involves creative problem solving activities known as literary studies.

There are many mobile robots sold on the market, but they all have some shortcomings in some places. Unlike other products already in the market, I believe that my mobile robot is "This chapter is a collection of information related to the project to assist and intelligent robots This chapter is a collection of information related to the project to assist and intelligent robots Wireless Ventilation Cleaner This study is important to avoid mistakes during the project and understand the configuration of the Arduino and ensure the best decisions are made to implement the project.

A literature review is a body of text that aims to review the critical points of current knowledge and or methodological approaches on a particular topic. Literature reviews are secondary sources, and as such, do not report any new or original experimental work.

Most often associated with academic-oriented literature, such as theses, a literature review usually precedes a research proposal and results section. Its ultimate goal is to bring the reader up to date with current literature on a topic and forms the basis for another goal, such as future research that may be needed in the area. A well-structured literature review is characterized by a logical flow of ideas; current and relevant references with consistent, appropriate referencing style; proper use of terminology and an unbiased and comprehensive view of the previous research on the topic.

Therefore, systematic and detailed planning must be arranged for produce a complete and perfect project. First step that we need made it, was design daub (sketching) for get the real image of machine that we want to be produced. Due to this, the work design and study that we made is a continuing process and it involving problem solving activity creatively namely which is known as literature study.

There are many different mobile robot sold in the market, but they all have some kind of lack of shortage in certain places. In contrast to other products already available on the market, I believe that my mobile robot which is "Wireless Ventilation Cleaner" is unique because it is able to interact and assist humans**General description of the existing system (problems, weakness, opportunities)**

People enjoy the house clean, because a clean house can combat any disease. However, for most people it becomes more challenging to keep them healthy and alive. Some people do not intentionally ignore the cleanliness of their homes just as busy.

In addition, the original human use manual power to check the situation in a clean ventilation condition every day. Therefore, it is a problem for those who do not really have time to spend the time to pack up the house even have their daily schedule. as a result of it, the house would be dirty and unpleasant when viewed.

Therefore, I take this opportunity to develop a "Wireless Ventilation Cleaner " wise to help people to help manage the cleanliness of the house. I believe that there is a need for Wireless Ventilation Cleaner, which takes care of all the different aspects in maintaining

the cleanliness of the house. I also believe that technology can help people in the house, not only by automation but also through digital communication with humans

1.5 Brief introduction of work / settlement proposed

Wireless Ventilation Cleaner will allow users to maintain their ventilation space so they will be more convenient to monitor their home situation more efficiently and improve the way they manage and maintain the home, especially in areas of life and worship. .

The project is designed according to individual needs that will help users use moving robots to maintain ventilation space and allow users to monitor the cleanliness of the ventilation space more effectively either at home or outside. Apart from mobile robots it will also help ensure the service information about the home environment in the same way improves and makes it easier for owners to care for their crops compared to manual methods.

Therefore, users will easily clean up their ventilation space through their mobile robot and at the same time easily and get information faster.

1.6 Full system blockdiagram

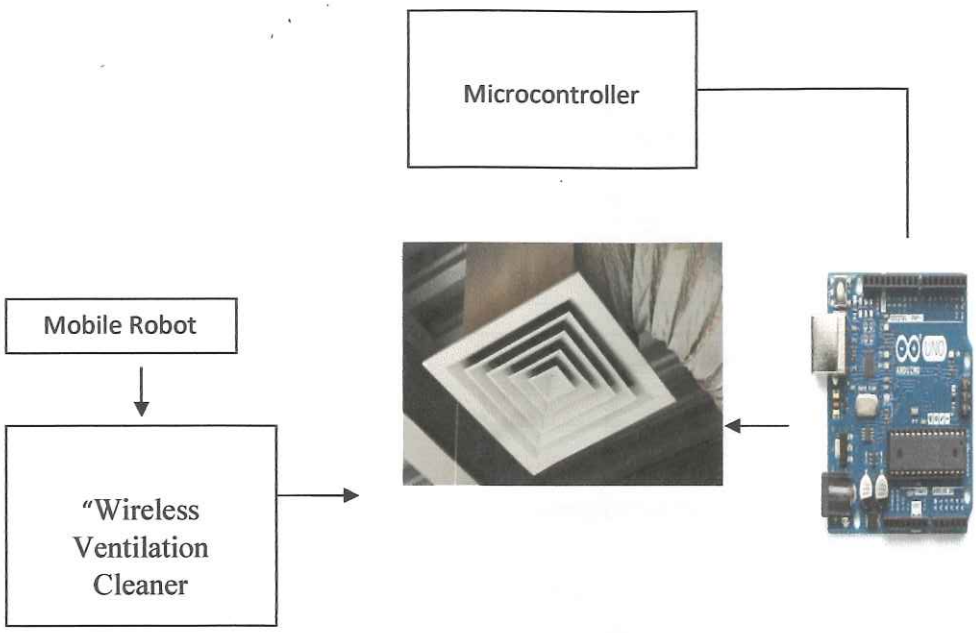
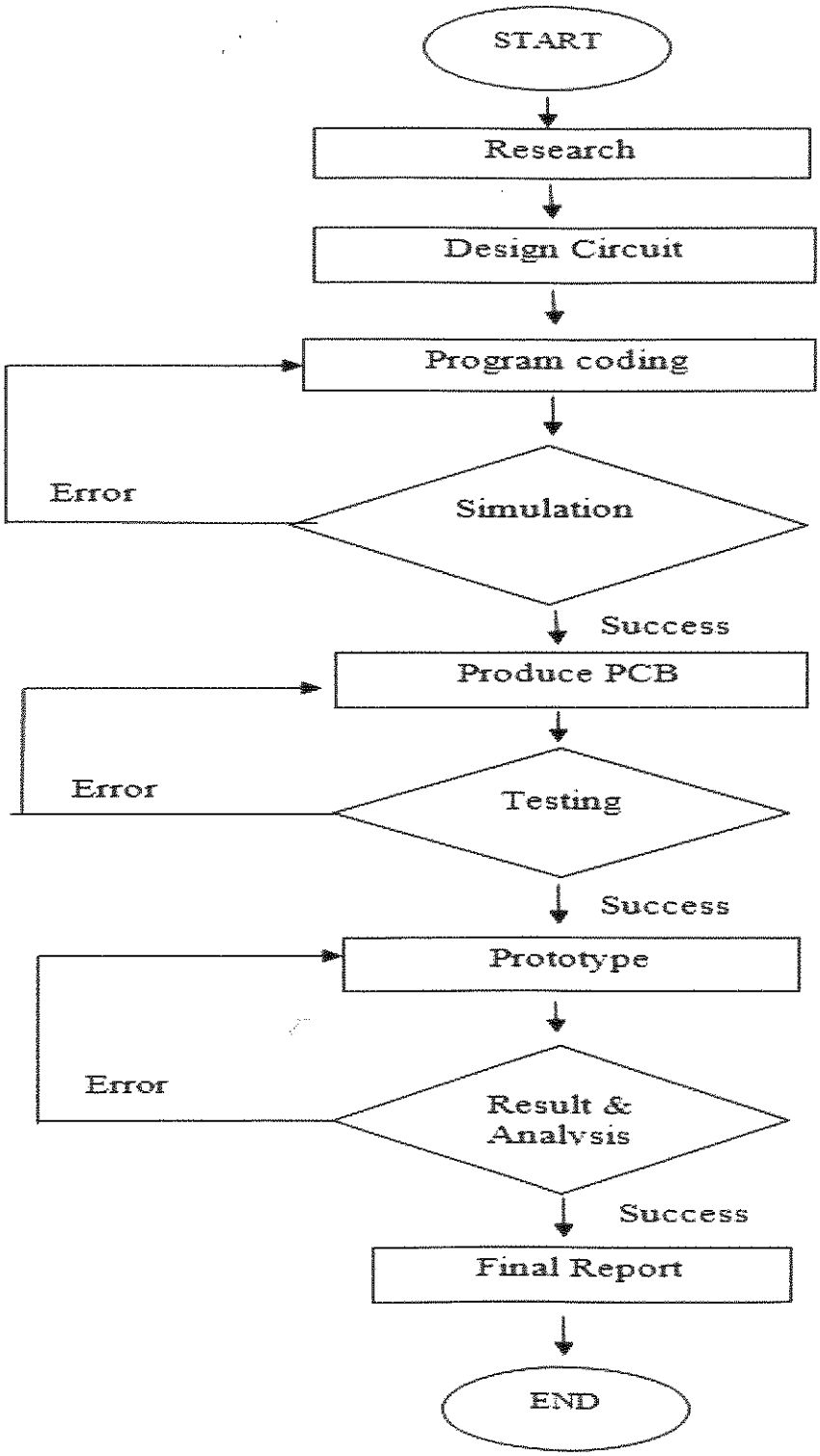


Figure 2.3: Full system block diagram

FLOWCHART OF PROJECT



2.7 Component of projects

This is the proposed for " Wireless Ventilation Cleaner " of material as on planned.

a. Diode

In electronics a diode is a two-terminal electronic component which conducts electric current asymmetrically or unidirectional; that is, it conducts current more easily in one direction than in the opposite direction. The term usually refers to a semiconductor diode, the most common type today, which is a crystal of semiconductor connected to two electrical terminals, a P-N junction. A vacuum tube diode, which was the first type of diode invented but is now little used, is a vacuum tube with two electrodes; a plate and a cathode.

The most common function of a diode is to allow an electric current in one direction (called the forward direction) while blocking current in the opposite direction (the reverse direction). Thus, the diode can be thought of as an electronic version of a check valve. This unidirectional behavior is called rectification, and is used to convert alternating current to direct current, and remove modulation from radio signals in radio receivers.

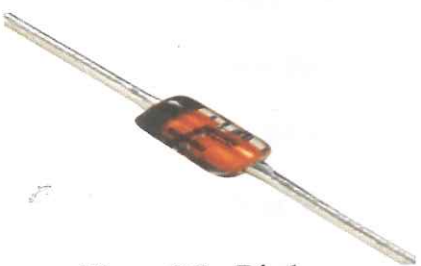
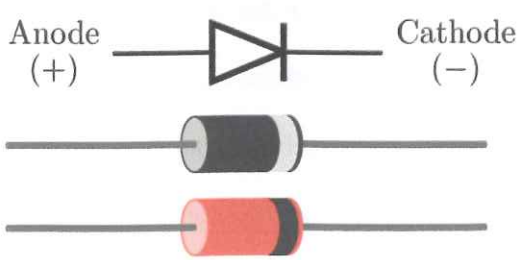


Figure 2.7a: Diode



b. USB type B

Universal Serial Bus (USB) is an industry standard developed in the mid-1990s that defines the cables, connectors andcommunications protocols used in a bus for connection, communication, and power supply between computersand electronic devices.

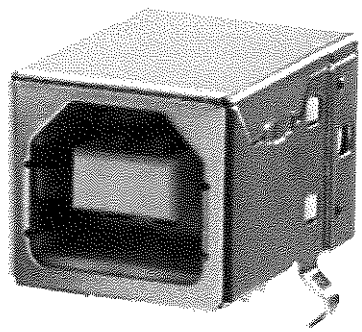


Figure 2.7c :usb type B

c. Capacitor

A capacitor (originally known as a condenser) is a passive two-terminal electrical component used to store energy electrostatic electric field. The forms of practical capacitors vary widely, but all contain at least two electrical conductors(plates) separated by a dielectric.The conductors can be thin films, foils or sintered beads of metal or conductive electrolyte, etc. The non-conducting dielectric acts to increase the capacitor's charge capacity. A dielectric can be glass, ceramic, plastic film, air, vacuum, paper, mica, oxide layer etc. Capacitors are widely used as parts of electrical circuits in many common electrical devices. Unlike are resistor, an ideal capacitor does not dissipate energy. Instead, a capacitor stores energy in the form of an electrostatic fieldbetween its plates.

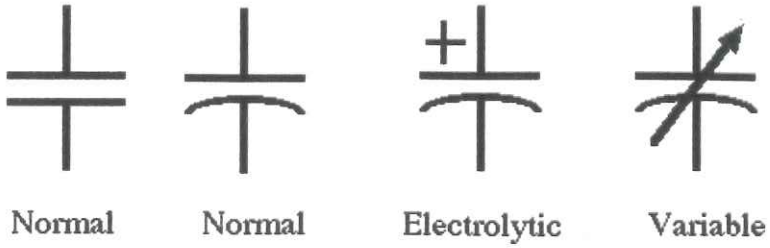


Figure 2.7d : Symbol of capacitor

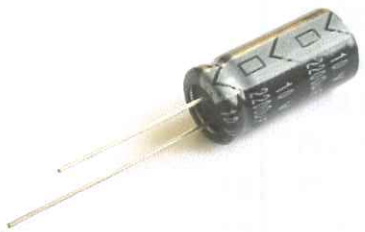


Figure 2.7e Capacitor

d. IC ATMEGA 328P-PU

The ATmega328P-PU is the same microcontroller chip used on the Arduino Uno boards and comes in a breadboard friendly package.

This is a blank chip for do-it-yourselfers who want to program their own microcontrollers from scratch. It comes is a standard 28 pin DIP package that is easy to handle, solder or use on a breadboard. The Atmel ATmega328 is an 8 bit AVR microcontroller with 32K of FLASH, 2K of RAM and 1K of EEPROM memory. In can run at clock speeds up to 20 Mhz and is able to operate at voltages from 1.8V to 5.5V. It has 23 GPIO General Purpose Input