

# **CONSTRUCTION AND DESIGN OF AUTOMATIC RUTI MAKER**

A Project and Thesis submitted in partial fulfillment of the Requirements for the  
Award of Degree of Bachelor of Science in Electrical and Electronic Engineering

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**December 2019**

**TO**  
**OUR BELOVED PARENTS**  
**&**  
**HONORABLE SUPERVISOR**  
**Mr. Saikat Basak**

# CERTIFICATION

This is to certify that this project and thesis entitled “Construction and Design of Automatic Ruti Maker” is done by the consequent students under my forthright convoy and this work has been paddled out by them in the Electrical and Electronic Engineering Department under the Engineering Faculty of Daffodil International University in a partial completeness which is vital for the degree of Bachelor of Science in Electrical and Electronic Engineering. This work had been presented on December 2019.

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# LIST OF ABBREVIATIONS

PCB	Printed circuit board
LED	Light emitting diode
LCD	Liquid crystal display
LDR	Light-Dependent Resistor
VCC	Voltage Common Collector
AC	Alternating Current
DC	Direct Current

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## **Abstract**

One of the most innovative products for today's world is Automatic Ruti Maker. The mechanical part of this machine is very simple to look at and the application of software is also very easy to understand to the users and manufacturers. The user will take it as a very helping household kitchen appliance for their daily life. This machine will save the time and reduce the worry about making ruti early in the morning. For an example if anyone wants to make ruti he or she has to put water and flour in the accurate bucket and give command to the machine. After a while about 1 minute later the user will get the same taste, proper sized and baked ruti in his or her hand.

The machine was designed, developed and perfected over a period of two years. Known for great ergonomics and compact size, the machine is used by leading caterers and restaurants to cook ruti, even at outdoor catering locations. With great mobility, compact size and low gas and electricity requirements, the machine serves as an ideal ruti making solution for the F&B industry.

# CHAPTER 1

## INTRODUCTION

### **1.1 Introduction:**

At numerous food & beverage industry and restaurants, it is routinely compulsory to make a lot of bread (ruti). Such type of work may be completed in couple of ways. Generally the decision of choosing the making procedure of a bread is depend upon on several criteria such as the number of breads, place of making bread as well as economic situation of a maker. An automatic electrical bread maker is one of those methods by which anyone can easily make the number of bread how many he or she wants. This machine helps the owner to reduce work pressure and brings comfort to one's life. It saves time as well. The reliability of this machine is more than one's expectation. This bread or Ruti also tastes as same as a human prepared bread. When it operates it follows the combination of similar principle of a burner & a mixer. Here different works distribute to different section. This combination makes the entire function faster.

### **1.2 Problem Statement:**

Like other projects we face lot of problems during making this automatic machine. We cannot gather every components from our local market so that we have to order those items from outside of the country. It takes enough time to reach our hand and sometimes shortage of component makes us to change our project layout as well. Other concerning issue comes forward when we start to make the outer body or shape of the machine. The adjustment of temperature and pressure of the coil or cooking section is very important because it is the last section before getting the final product. We use different methods and mechanism to adjust it perfectly. We also have study and analysis a lot to control the ratio of flour, oil and water to make a dough automatically. A perfect dough is very important to transform it into perfect final product. We have more future plan to digitalize the machine where we can use more precise component to make it much lighter and more reliable beyond every problem.

### **1.3 Objective of the project:**

Generally, the objective of this project is to change our life style. Now a days we are passing through a very hard time. Because of insufficient of time sometimes we are unable to make our bread in the morning when we are going to school or office. This Automatic Ruti Maker will help one to make bread in less effort. The operation of this also seems very easy to everybody which will be playing an important role like as a family member. The performance of this machine will help to save time as well as reliable stuff of getting daily meal.

### **1.4 Scopes:**

The main assignment of an “Automatic Ruti Maker” is to play a role as helping hand in our home appliance. This will certainly get warm reception by almost all housewife. Beside this, in some cases it will be very helpful commodity for the disable people. It will certainly solving the very long desired problem for the restaurant owner. Food & beverage industry also can take the benefits of this machine for their production.

### **1.5 Methodology:**

In our project there are different section which are combinedly perform their duties to get the final product. The whole mechanism is controlled by a control unit. A microcontroller ATmega 328P control the whole system step by step. Before making a dough the materials are mixed in a suitable ratio which is fixed and controlled. Then after making a dough in the kneading section it sends towards the pressing section through an arm which is performed by a servo motor. Then the dough is pressed and take the shape of a round Ruti. At the same time the coil become hot and start to cook the bread or ruti for a certain time. For the first piece it take almost 5-6 minutes but the time will be reduced for the upcoming pieces. Maximum 40-50 seconds will be need to cook the upcoming piece.

## **1.6 Organization of the Report:**

There are seven chapters in total in this report. Different chapter describes different topic. The introduction belongs from the first chapter where we describes our idea about the project in a short brief through problem statement methodology and different scopes of the project. We describe about history of our project, list of the components and different diagram like block and circuit diagram in the second chapter. The third chapter is the heart of the report where one can know the component description which we use in our project and our project cost as well. The fourth chapter explains about the software analysis of the micro controller. The hardware implementation describes through the chapter five. Result and discussion of the project is in the chapter six. Chapter seven holds the concluding remarks, limitation of the project and plan as well as suggestion for the future works.

## **1.7 Summery:**

The entire chapter gives the brief idea about the project. Here the reader get to know about the introduction about the project. The objective of the project and the scopes where the project can be implemented is known from the chapter. What type of problems we had faced from start to end and the methodology also get from this chapter.

# CHAPTER 2

## SYSTEM REVIEWS

### 2.1 System Introduction & History:

The automatic ruti maker is a newly introduced machine. Now a days it increases its popularity in developed city rapidly. We had already seen automatic pizza maker. It is also similar with that kind of machine. An Indian couple who lives in Malaysia introduces this advanced automatic ruti maker after a long research. We are trying to add some features so that the customer of this product, will feel more convenient when use. The system of this machine totally controlled by a microcontroller ATmega 328P. This module helps the other component run smoothly. There are some other components which are also assist this microcontroller as well.

### 2.2 General Block Diagram:

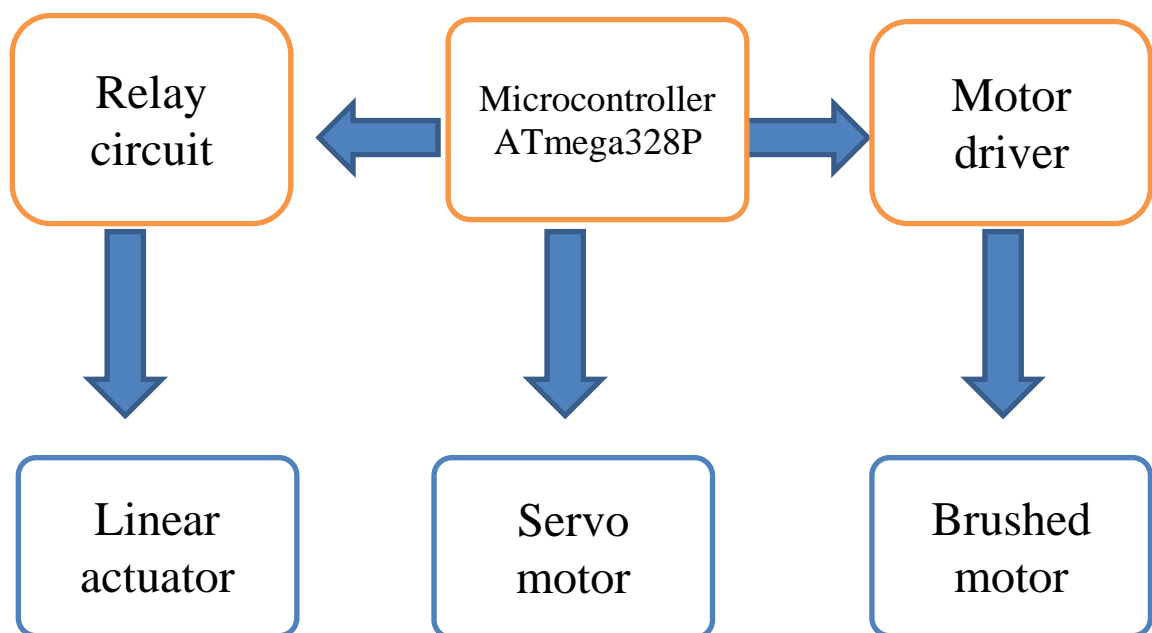


Figure 2.1: Functional block diagram

## 2.2.1 Description of Block Diagram:

From the above diagram we can see that this machine is mainly comprises ATmega328P microcontroller, relay circuit, motor driver, servo motors, brushed motors, linear actuator. ATMEGA328P controls the whole procedure. The function of this microcontroller is to take decision and give commands to other related components so that all of them could run smoothly. Linear actuator is controlled by the microcontroller through the relay circuits. This linear actuator controls the moving of heating coil. This heating coil cook the bread from both side and press the dough to transform into a round bread as well. So the pressure and temperature also need to keep under control. The motor driver controls the speed of brushed DC motor to move it in a required value. Servo motors are used to send the dough to the cooking section and send out the prepared ruti outside the machine also. This servo motors are under controlled by the microcontroller directly. The final product can be gotten properly if all these process functioning perfectly.

## 2.3 Circuit Diagram:

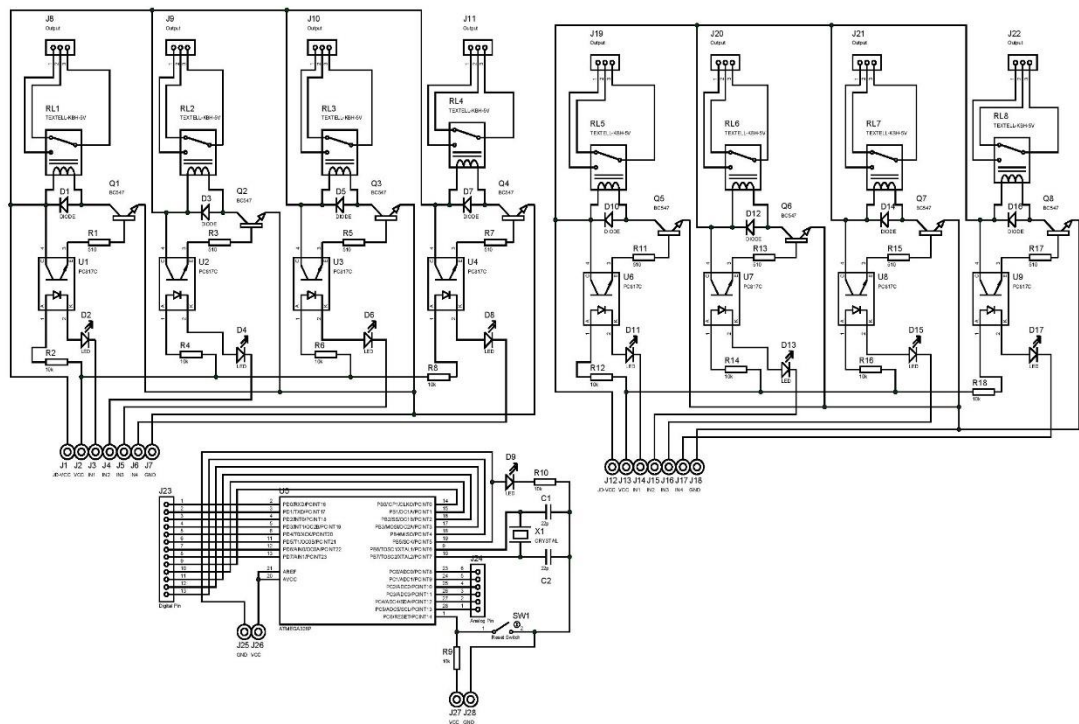


Figure 2.2: Circuit diagram of the motherboard.



### **2.3.1 Working Process:**

An IR LED and IR photo transistor makes the sensor. IR photo transistor responds to only Infrared waves. The other light interferences which generates from the atmosphere evades by the IR phototransistor. IR diode and photo transistor both are adjacently aligned. Through the IR diode the resistor R2 limits the current. On the rotating object a reflective divest is glued which is may be a disc or fan with an IR sensor. A 9V/100mA cooling fan is utilized here by us. The clearance is less than 1 centimeter between the reflective divest and the sensor. At the time of passing of the reflective divest the photo transistor receives the reflected wave which comes from the IR sensor as an IR waves. At that time the photo transistor waits for the reflected IR waves. The conduction of photo transistor is more than before at that time and the voltage across 68K resistor boosts up at that time. The figure which is seen in below is the waveform which we get from the above process result. In a given interval of time the RPM of a shaft can be measured perfectly by counting the upper shoots.

### **2.3.2 Regulating the speed of motor & actuator:**

A potentiometer is comprised in the circuit while utilizing for a dispensation for regulating the motor haste. For driving the motor transistor Q1 is utilized. At PWM pin 9 its base is attached to the ATMEGA8a care of the current enclosing R1resistor. At analog pin A0 of the ATMEGA8a the wiper of the haste control R4 POT is attached. Utilizing the analog reading function the voltage at this pin is transformed into a value between 1023 & 0.

The value is being separated by 4 to competent it into the 0 to 256 limit. Utilizing the analog composed function the value is composed to the PWM pin 9 after that. Utilizing the analog composed function a square wave will be the result. A freewheeling D1 is the diode and is named to a noise by-pass capacitor. The result in revolution per minute and obligation cycle is exhibited on the LCD. The program which is used to run digital tachometer utilizing ATMEGA8a are attached with the bottom of the book. At digital pin 2 the photo transistor's Emitter is attached with the ATMEGA8a. Therefore in the waveform of the emitter for every upper shoot there will be an interrupt.

## 2.4 List of Components used in Circuit:

Table 2.1: list of components used in circuit

Serial no.	Component Name	Quantity	Application
01.	Microcontroller ATmega328P	01	Used as the controlling unit.
02.	Linear actuator (100mm,1000N)	01	For moving the arm which attach with the upper coil.
03.	Servo motor (MG996R)	02	For moving the arms.
04.	Motor driver (L293D)	01	Control the other motors speed.
05.	Brushed DC motor	02	To control the flour & water movement.
06.	Relay module 5V		Basically it is a switch.
07.	Transformer(220/12V)	01	Transform the voltage.
08.	Heater coil	02	Bake the Ruti.
09.	22pf ceramic capacitor	01	To store voltage.
10.	Electrolytic capacitor (100pf, 10uf)	01	Current to flow in the opposite direction through the panels
11.	Voltage regulator 7805	01	To Controlled amounts of resistance in to electrical circuits.
12.	Resistor 10k	16	Regulate current passing.
13.	Diode (IN4007, IN4148)	10	conducts current primarily in one direction
14.	Transistor 58050	10	amplify or switch electronic signals

## 2.5 Summery:

This chapter includes with the previous history of the automatic ruti maker. As well as the reader will benefited from this chapter to get the block diagram of the internal mechanical function and the circuit diagram of the motherboard. The components is also very useful which can be known from this chapter.

# CHAPTER 3

## HARDWARE AND

### COMPONENT DESCRIPTION

#### 3.1 Introduction:

This Ruti maker consists of several sections to make a complete ruti or bread. It can be sectionalized such as containers, control screen, kneading section and cooking section. There are two doors which help one to perform several things if needed. They are front door and side door. The front door is generally used for receiving the prepared ruti. Through the side door one can see the kneading process and making of dough.

#### 3.2.1 Containers:

Container is the first section from where the procedure is being started. The container has three parts such as flour container, water container and oil container. At first to prepare ingredients all the three containers need to be removed from the slot. The user must ensure himself that the container of flour is completely dry. After that fill up the flour to the maximum making for the perfect flour flow. Remove the water and oil container to fill them up. Finally place both of the containers to the slot and press it all the way down firmly.



Figure 3.1: Container

### 3.2.2 Kneading Section:

In traditional way kneading can be performed by hand. But in this section kneading is performed automatically. From containers flour and water are going to the kneading section at a predetermined proportion to make dough. With the help of stirrer and dough cup the dough is made perfectly. This kneading section consists of three different parts. They are stirrer, dough cup and tray, sweeper. All these equipment perform so well to make a perfect dough for the next of pressing and cooking section.

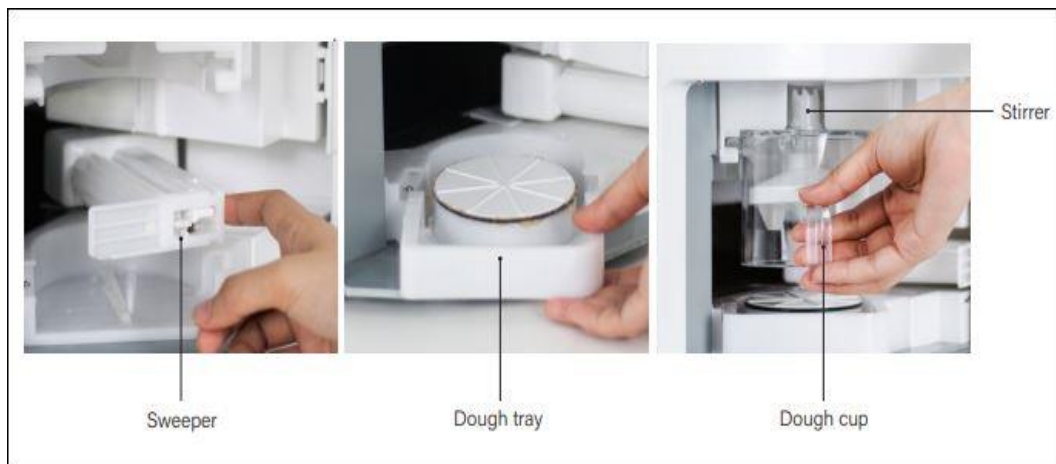


Figure 3.2: Kneading section

### 3.2.3 Baking Section

After making a perfect dough a sweeper helps it to move forward to the pressing and cooking section immediately. This section creates pressure on the dough from the upper moving side and makes a ruti in a perfect shape. Downside and upper side both contains coils to create and maintain temperature from the both side perfectly.

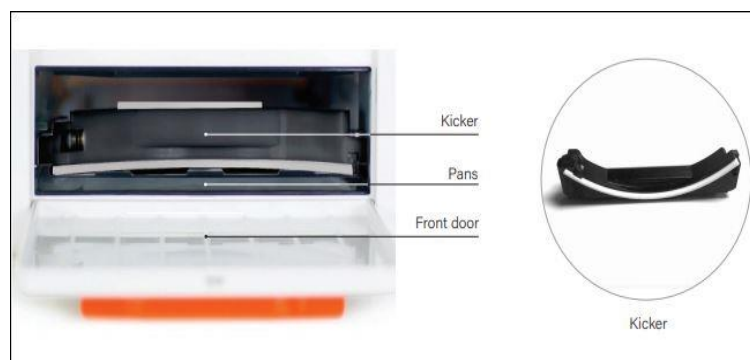


Figure 3.3: Baking Section

### 3.3 Microcontroller ATmega328P:

This is a high performance along with low power 8 bit AVR microcontroller. In the feature it contains advanced RISC architecture. The general purpose working register is  $32 \times 8$  bit and perform fully static operation. The memory segments are highly endurance and non-volatile. It has a flash program memory with a self-programmable along with 32k bytes in system. It takes 1Kbytes EEPROM and 2Kbytes internal SRAM. In per 100,000 EEPROM the write or erase cycles is almost 10,000 flash. There is an independent lock bits for optional boot code section. Also programming can be locked for entire software security purpose. It comprises real time counter with separate oscillator. It has six pulse width modulated channels. The temperature range is in between -45 to 125. The consumption of power is also compared to low. In active mode it is 1.5mA at 3V - 4MHz. In power-down mode it belongs  $1\mu\text{A}$  at 3V. The operating voltage is 2.7V-5.5V. Here is 23 programmable I/O lines to perform action.

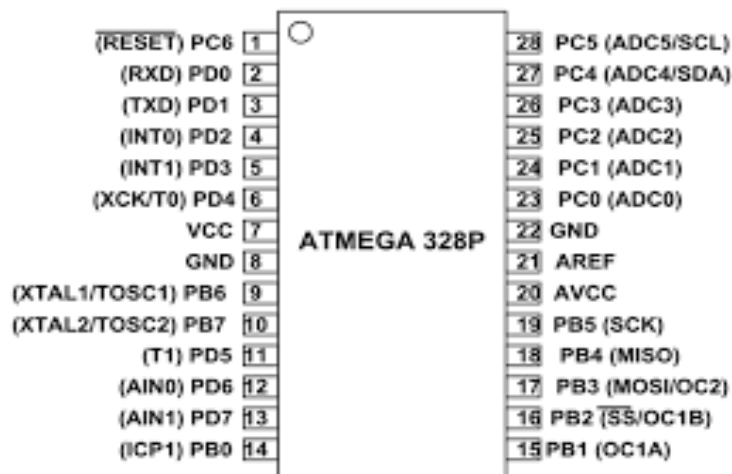


Figure 3.4: Microcontroller

### 3.4 Linear Actuator (100mm, 1000N):

Linear actuator is also known as electric putter, electric cylinder and push rod motor. The electric putter which is an electric drive acts on to a push rod through converting rotational motion of the motor into a straight reciprocating motion. For the implementation of mechanical use it can be used on various simple and complex process, to obtaining long range control also centralized or automatic control.

**Working procedure:**

After when the motor is going to be slowed down by the gear, drive a pair of screw nuts. The use of motor reversal to complete the action of putter it is compulsory to convert the motor rotation into linear motion. In order to complete the rotation, shake and other complex movements it need to go through a various types of lever, rocker or connecting rod and other several institution. To increase the stroke there need to change the length of the arm of the lever.

**Component specification:**

Weight range: 950gm-980gm

Size: 205\*40\*75milimeter

Permanent magnet DC motor drive, approximate voltage level 12vDC

Maximum pull/push: 150kilogram

Maximum thrust: 1000N

Level of noise: less than or equal 50dB

Standard travel: 100mm

Travel speed: 12mm/s



Figure 3.5: Linear Actuator

### 3.5 Servo Motor (MG 996R):

In MG996R version servo motor all the gear are metal made. In the project we are going to use this servo motor because of some special features of this servo motor. In this tiny package it offers extra high 10 kg stalling torque only cause of metal gearing. To make it much more accurate and precise than its predecessor MG995R, added some extra features like it is shock proofing and a redesigned PCB and IC control system. The upgradation takes place in the gearing and motor in order to improve dead bandwidth and centering. Approximately 120° that is 60° in each direction can be rotate by high torque produced servo.

#### General Specification:

Weight of this servo is almost 55gm. The dimension of this model is approximately 40.7 x 19.7 x 42.9 mm. The stalling torque goes to 9.4 kgf·cm (4.8V), 11 kgf·cm (6V) in between 4.8V a 7.2V it can be operated smoothly. 500mA is the running current but the stall current is 2.5A (6V). In 0°C ~ 55°C temperature this servo performs its duty perfectly.



Figure 3.6: Servo Motor MG996R

### 3.6 Motor driver:

An integrated circuit chip which is generally used to control the direction of motors in automated robots is known as a motor driver. Motor driver represents itself as an interface between the motors like servo or DC motors and the Arduino. The L293 series is the most commonly used motor driver IC's. The series are like L293D, L293NE etc. Two DC motors are controlled in either direction simultaneously by these single IC. The L293D IC has two H-Bridge which means it is designed through the simplest circuit and can control low current rated motor smoothly. We are using L293D motor driver IC in our project so that only this IC is described below.

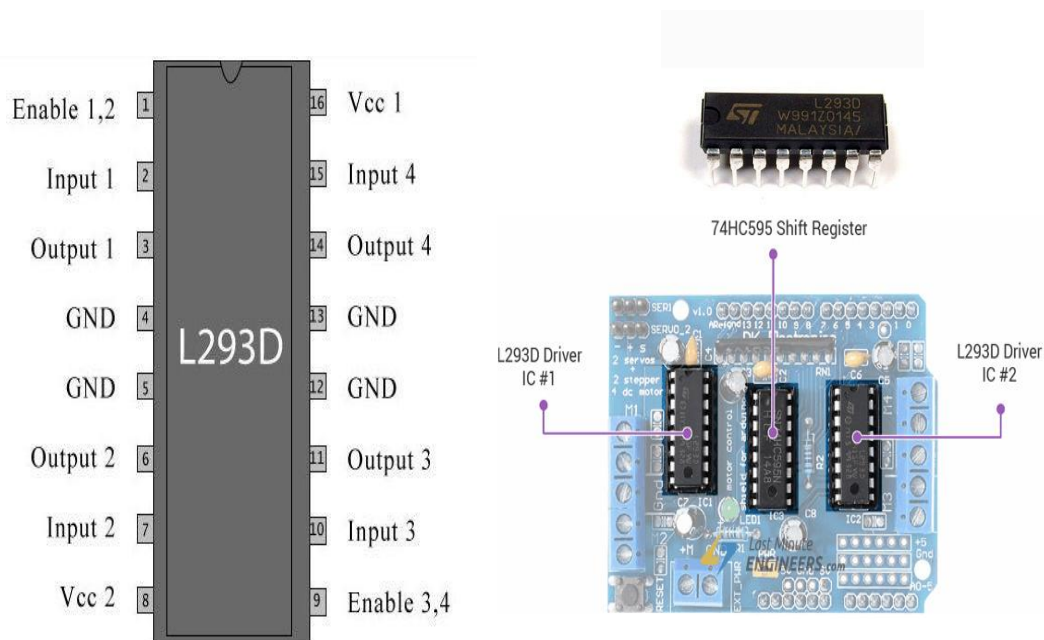


Figure 3.7: Motor Driver L293D

It is a 16 pin IC along with 8 pins on each side. It has 2 i/p pins, 2 o/p pins and 1 Enable pin for each side. At the initial stage the IC deals with a very heavy current. For the reason of high current flow the IC can be over heated. To reduce the heat 4 ground pins are act as a heat sink and the heat is released through the ground. As the DC motor is an inductive load so it certainly produce back EMF at the time of voltage supply. The fluctuation of voltage can be occur at the time reverse moving of the motors which can damage the motor instantly. The capacitors are used to save the IC from the damage of variation current flow.



### 3.7 Brushed DC motor:

Four basic component make a complete brushed DC motor. The components are the stator, the rotor, brushes and commutator. The stator generates stationary magnetic field which is made by either electromagnetic windings or permanent magnets. The rotor is surrounded by this stationary magnetic field. Next component is the rotor which is also known as the armature. This is made up of single or multiple number of windings. When the windings are get energized they generates magnetic fields. The magnetic poles of this rotor field will be attracted to the opposite poles generated by the stator, causing the rotor to turn. As the motor turns, in a different sequence the windings of the rotor are constantly get energized so that the poles which is generated by the rotor never overrun the poles of the stator.



Figure 3.8: Brushed DC Motor

Brushed DC motors do not require a controller to switch current in the motor windings. Instead, it uses a mechanical commutation of the windings. A copper sleeve (commutator), resides on the axle of the rotor. As the motor turns, carbon brushes slide over the commutator, coming in contact with different segments of the commutator. The segments are attached to different rotor windings, therefore, a dynamic magnetic field is generated inside the motor when a voltage is applied across the brushes of the motor. The brushes and commutator are the parts of a brushed DC motor that are most prone to wear. So, as the rotor rotates inside the stator, the brushes rub the different segments of the commutator supplying a charge to that segment and its corresponding winding. As the bushes pass over the commutator gaps the supplied electrical charge will switch commutator segments. Thus, switching the electrical polarity of the rotor windings. This will create an attraction of the different polarities and keep the rotor rotating within the stator field. This process will continue as long as a supply voltage is applied.

### 3.8 Relay module:

An electrically operated switch named relay which can be used to turn on or off as well as letting the current go through or not. Relay can be controlled with low voltage like 5V which is provided by the Arduino.

It works on the principle of an electromagnetic attraction. When the circuit of the relay senses the fault current, it energizes the electromagnetic field which produces the temporary magnetic field. This magnetic field moves the relay armature for opening or closing the connections



Figure 3.9: Relay Module

A relay is an electromagnetic switch that is used to turn on and turn off a circuit by a low power signal, or where several circuits must be controlled by one signal. We know that most of the high end industrial application devices have relays for their effective working

### 3.9 Transformer (220/12 v):

A passive electrical device which transfers electrical energy between multiple circuits is known as transformer. There is two coils in the same core. An alternating current in one coil of it generates varying magnetic fluxes. At the same time this magnetic fluxes induces varying electromotive force in the second coil.



Figure 3.10: Transformer

This device electrical energy can be transferred through the coils in the absence of metallic connection in between them. Faraday's Law of Induction stated that the induced voltage effect in any coil because of changing fluxes which is encircled by the coil. The main application transformer is to increase or decrease the alternating voltage in the electrical power system. Here we use a step down transformer which is decreasing the 220V into 12V.

### **3.10 Heater Coil:**

Straight or corrugated ribbon, a coil or strip of wire which gives off heat as much as like a filament of lamp is known as heating element. This element radiates heat in a very simple process. When electric current passes through the tubes it starts glowing into red hot and converts the passing current into heat energy. Then the heat radiates out almost in all direction of the tube.

These elements are typically either iron based or nickel based. Nichrome is the most commonly used nickel based heating element. It becomes familiar because of its various good characteristics. It is an alloy which is a mixture of metals and other chemicals. In the mixture there are 81 percent nickel and 19 percent chromium.

Even at a high temperature it does not oxidize and about 1400°C melting point which is very high makes it popular in the market. Another good side is it has a very reasonable resistance and doesn't expand too much when it is heated up.

### **3.11 22pf Ceramic Capacitor:**

The dielectric characteristics is carried out by the ceramic materials in a ceramic capacitor. The value of these capacitors are also fixed in amount. These capacitors consist of two types of layers. One is metal layer and another one is ceramic layer. Both are acted as the electrodes of the capacitors. They are classified into 2 application classes:

- ❖ Using compositions of par electric substances based on "Titanium Dioxide" results in very static & lineal conduct of the capacitance value within a predetermined temperature limit and less losses at large frequencies. But these compositions have a comparatively lower permittivity in order that the capacitance values of these capacitors are comparatively very small.

- ❖ Higher capacitance values for ceramic capacitors can be performed by utilizing compositions of ferroelectric materials like “Barium Titan” ate together with individual oxides. Higher permittivities are found in these dielectric materials, but at the same time their capacitance value is more or less nonlinear over the temperature limit and losses at high frequencies are also much higher.

These various electrical characteristics of the ceramic capacitors needs to group them into "application classes". The definition of the “Application Classes” appear from the standardization. As of the year 2013, two groups of standards were in use, one comes from “International Electro technical Commission (IEC)” and another one arrives from the now-defunct “Electronic Industries Alliance (EIA)”. Ceramic capacitors, particularly MLCCs (multilayer ceramic capacitors), are the most created and used capacitors in electronic materials. The various ceramic materials which are used for ceramic capacitors, par electric or ferroelectric ceramics, impacts the characteristics of the capacitors of the electrical behavior.



Fig 3.11: Ceramic Capacitor 22pf

### **3.12 Electrolytic capacitor 100pf & 10uf:**

A specified metallic object is used to make the positive plate of an electrolytic capacitor. This capacitor is being polarized. It creates an oxide layer through iodization which is insulated. By the oxide layer this capacitor shows a dielectric behavior. An electrolyte covers the whole surface of the oxide layer of the capacitor.

It is known as the cathode. Compared to the ceramic capacitor it has a higher capacitive voltage. It is happened because of their enlarged surface area in anode and dielectric oxidative layer. There are three electrolytic capacitor family:

- 1) Electrolytic capacitors of Aluminum,

- 2) Electrolytic capacitors of Niobium,
- 3) Electrolytic capacitors of tantalum.

These types of capacitors are working smoothly through low frequency signals. In power supplies these capacitors are broadly utilize for decoupling or noise filtering.

The DC link circuits for variable-frequency drives are also used these type of capacitors. It acts as a storage of energy at a light and different stages of amplifier the signals are coupling by the capacitor. Asymmetrical construction makes these capacitors components behavior as polarized. The terminal of anode and cathode are marked as a plus and minus sign.

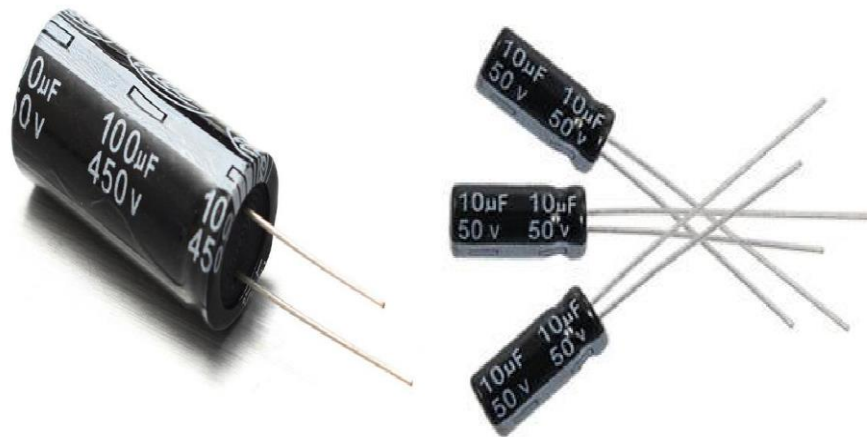


Fig 3.12: Electro light capacitor 100pf & 10uf.

### 3.13 Voltage regulator 7805:

All voltage sources cannot able to give fine-tuned output due to fluctuations in the circuit. For getting constant and steady output, the voltage regulators are implemented. 19 The integrated circuits which are utilized for the regulation of voltage are termed as voltage regulator ICs. Here, we can discuss about IC 7805. The voltage regulator IC 7805 are genuinely a member of 78xx series of voltage regulator ICs. It are a fine-tuned linear voltage regulator. The xx present in 78xx represents the value of the fine-tuned output voltage that the particular IC provides. For 7805 IC, it are +5V DC regulated power supply. This regulator IC additionally integrates a provision for a heat sink. The input voltage too

this voltage regulator can be up to 35V, and this IC can give a constant 5V for any value of input less than or identically tantamount to 35V which are the threshold limit.

### **3.13.1 Working:**

The AC energy from mains first gets converted into unregulated DC and then into an unregulated regulated DC with the aid of a circuit. Circuits are unruffled of transformer, bridge rectifier, linear voltage regulator 7805 and capacitors. If you discern, working of circuit can be forked into two modules. In first portion, the AC Mains are converted into unregulated DC and in the second phase, unregulated DC convert into regulated 5V DC. Let us commence with this in mind. At first, a 230V to 12V Step down transformer is connected and its primary is clamped to mains supply. The secondary of the transformer is connected to Bridge rectifier (either a dedicated IC or accumulation of 4 1N4007 Diodes can be used). A 1A fuse is connected between the transformer and the bridge rectifier. This will limit current drawn by circuit to 1A. The unregulated DC from the bridge rectifier is filtered out with the aid of 1000 $\mu$ F Capacitor. So, the output across the 1000 $\mu$ F Capacitor is unregulated 12V DC. This is connected to the 7805 Voltage Regulator IC. 7805 IC then converts this to a regulated 5V DC and output can be attained at its output terminals.

### 3.14 10k Resistor:

In a circuit there are several elements. Among them resistor is a two terminal electrical component which main objective is to resist the current through it. It works in several ways like it reduce flow of current, signal levels adjustment, voltage division etc. transmission line can also be terminated by using a high power resistor. As well as it also take parts in power distribution or generators test issue like those high power resistors which can able to dissipate heat. There are another types of resistor which is known as variable resistor. They are used to adjust the circuit elements.

Within integrated circuits resistors are withal implemented. Resistor has an electrical function which is designated by its resistance. Within the manufacturing tolerance the nominal value of the resistance falls. The color code helps to find the value of a resistors.



Fig 3.13: Resistor 10k

### 3.15 Cost Analysis:

Now in this section we will let you know about the cost of the components which are used to complete our project.

#### 3.15.1 Cost Sheet:

Table 3.1: Cost sheet.

No	Component Name	Quantity	Purchase Price (TK)
01	Microcontroller ATMEGA8a	01	500
02	Push Button	01	20
03	Linear actuator 100mm, 1000N	01	5000
04	Servo motor MG 996R	03	1500
06	Brushed DC motor	02	1000
07	Relay module 5V	02	600
08	Transformer 220/12V	01	200
09	Voltage regulator LM 7805 Voltage regulator LM 7812	01	50
10	Electro light capacitor 100uf	01	2.5
11	Electro light capacitor 10uf	01	2.5
12	Resistor 10k	16	25
13	Heater coil	02	2000
15	Diode IN 4007 Diode IN 4148	10	50
16	Transistor 58050	10	100
17	LED 5V	10	20
	Total		= 9300



### **3.16 Summery:**

This Project is used to save power and gain voltage. Our all component are very simple & available in our country market. Also most of the component are reasonable in price. The entire discussion will help the reader to understand the component very easily.

# CHAPTER 4

## SOFTWARE ANALYSIS

### 4.1 Introduction:

We are going to discuss several important topics about the software in this chapter. Firstly a brief description about the software will be discussed. The code language which is used described briefly as well. Here we also mention elaborately about the tools which are related to the code. The compile window and flow chat helps one to understand the software analysis very conveniently. The picture of compile window helps one to experimental activities enrolling.

### 4.2 Description of our Software:

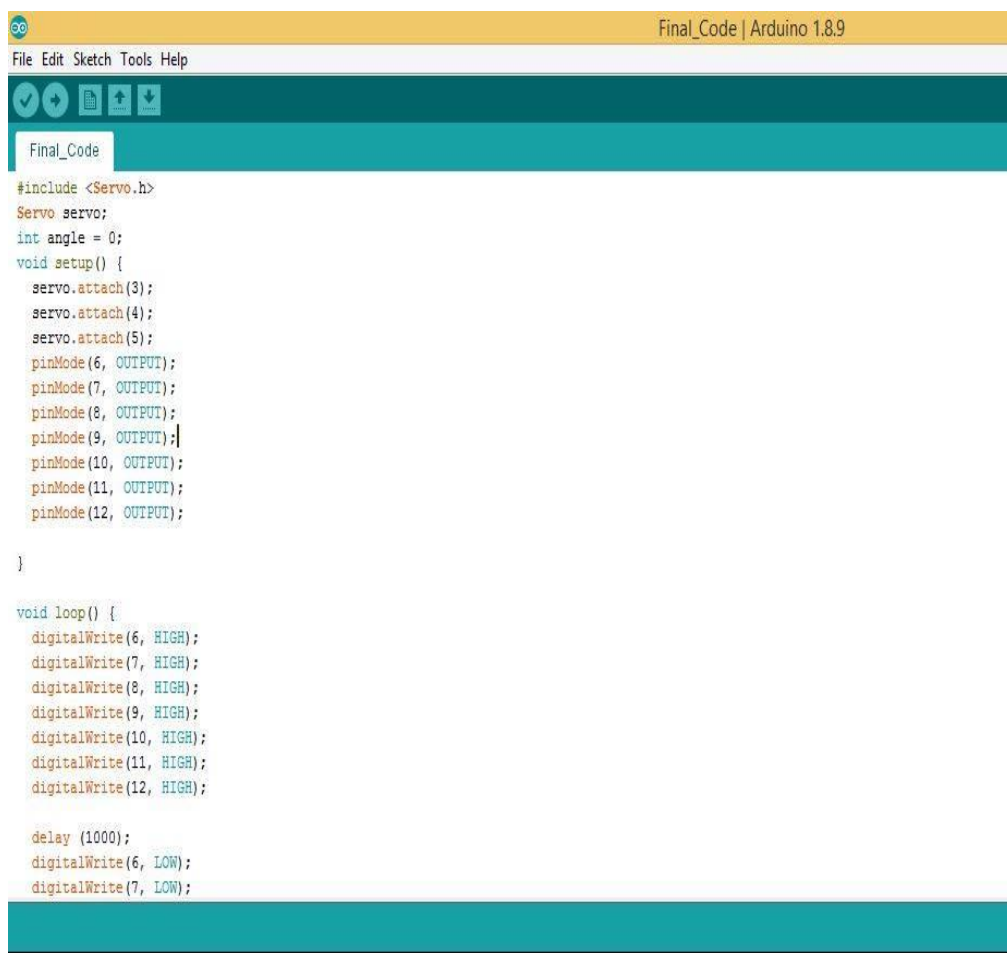


Fig. 4.1: Software platform

To write code and upload it to the I/O board, the ATMEGA8a environment create it much easier. This code can run on Mac OS X, Windows and Linux. The screen shot of ATMEGA328P is shown below.

The compiling and uploading of programs to the board can be possible by it with a single click. With several third party tools such as Ion the building on command line is possible if required. On a command-line interface here it is generally not necessary to edit make files or run. With a C/C++ library called "Wiring" which makes many conventional i/p or o/p performances very easily is appeared via the ATMEGA8a IDE. Even if users only need to define two functions to make a program runnable the ATMEGA8a programs are installed in C/C++.

### 4.3 The compiled window of my code is shown below:

The image shows a screenshot of the Arduino IDE interface. The title bar at the top reads "Final\_Code | Arduino 1.8.9". Below the title bar is a menu bar with "File", "Edit", "Sketch", "Tools", and "Help". A toolbar with icons for file operations and execution is visible. The main text area contains the following C++ code:

```
#include <Servo.h>
Servo servo;
int angle = 0;
void setup() {
  servo.attach(3);
  servo.attach(4);
  servo.attach(5);
  pinMode(6, OUTPUT);
  pinMode(7, OUTPUT);
  pinMode(8, OUTPUT);
  pinMode(9, OUTPUT);
  pinMode(10, OUTPUT);
  pinMode(11, OUTPUT);
  pinMode(12, OUTPUT);
}

void loop() {
  digitalWrite(6, HIGH);
  digitalWrite(7, HIGH);
  digitalWrite(8, HIGH);
  digitalWrite(9, HIGH);
  digitalWrite(10, HIGH);
  digitalWrite(11, HIGH);
  digitalWrite(12, HIGH);

  delay(1000);
  digitalWrite(6, LOW);
  digitalWrite(7, LOW);
```

Fig.4.2: Compiled window

We are used a very smart fire based restore system in this application. We are design the whole system very simple to make it convenient to the customer. For the security purpose we have a plan to add an admin login process so that it may feel easier to children consisting family. Also the code will control almost all the process of the machine so that it may run smoothly.

#### 4.4 Flow Chart of Diagram:

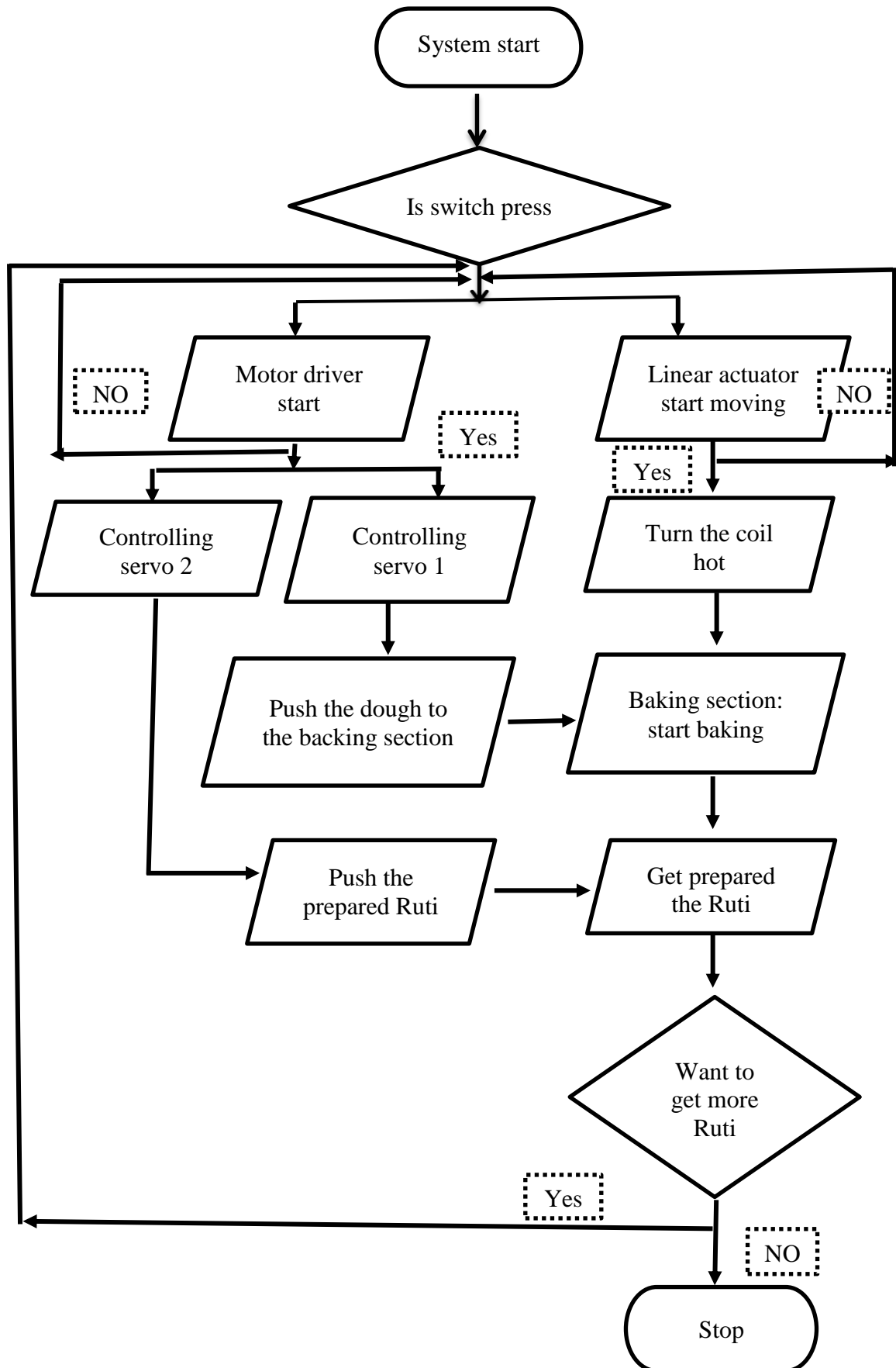


Fig 4.3: Flow Chart of our system.

## **4.5 Summery:**

Software is the most important sector for automation. The application of a software makes the machine more effective and efficient. From this chapter one can know about which software we use to run the machine and the system of operating the software.

# CHAPTER 5

## RESULT AND DISCUSSIONS

The points of this list will be explained to understand the overview of the machine.

### 5.1 Introduction:

The discussion of the result is very important issue for any kind of project. How efficiently the project working can be known from the result section. Here we will discuss about the output of the machine and the final products which gets form the machine. By analyzing the output we will come to a decision that whether the machine need more correction or not.

### 5.2 Proposed assembly for the Automatic Ruti Maker:



Fig 5.1: Proposed assembly for the Automatic Ruti Maker

### 5.3 Final assembly for the Automatic Ruti maker:

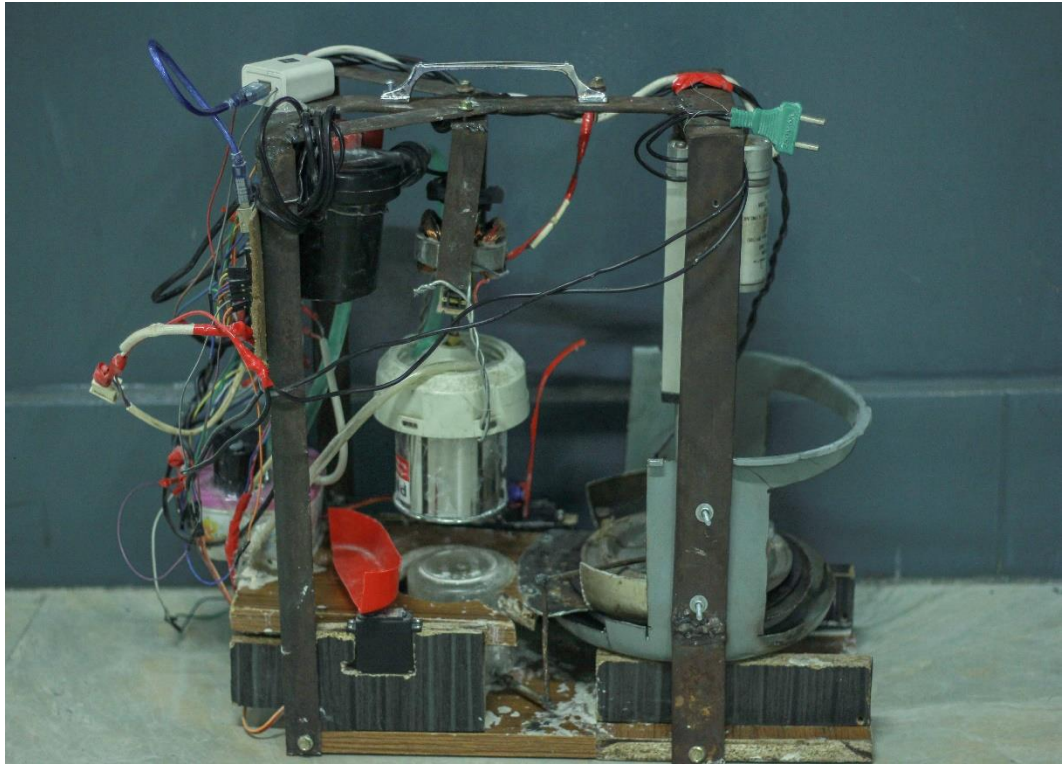


Fig 5.2: Final assembly for the Automatic Ruti maker

### 5.4 Output of the project:



Fig 3.3: Output of the project

## **5.5 Summery:**

In this session we are discuss about our project output. The final result or final product which comes out from the machine looks very satisfactory. After acquiring all the future features this machine will surely go beyond the limit of home appliance automation.



# CHAPTER 6

## CONCLUSION

### **6.1 Conclusion of the project:**

The automatic ruti maker is such a machine which is like a family member. It acts like a helping hand who makes life easier and more convenient as well. A person who follows a very tight schedules because of his hard working and does not get time in the morning for preparing the ruti for breakfast, this machine makes his or her daily life more comfortable and saves their time as well. It works with less effort and provides a big amount of time saving output. The preparation manual will helps a person come to know about the procedure of using the machine. Once a person put down the flour and water into the correct bucket, it needs a several while for the machine to prepare the ruti with a perfect shape, thickness and shape. So the activities of this machine brings pleasure to human family in working days and holidays also.

### **6.2 Advantages:**

The advantages of this product or machine can't express within few words. This brings a new revolution for the society and industries as well. The industry will manufacture products through this machine more cost effectively than before. This will saves more human resources and saves time as well for making the product. A minimum current will utilize by the machine which makes more efficient. The maintenance charge also reasonable for the consumers and the damage rate also very small as it is a home appliance also. We have some other future plans which makes the machine more convenient for the users. On the other hand, I explained earlier how important it is for a family. Saving time, less effort for making a product by the user and making life simple and easier are the top most advantages of this machine. After all improvements of this machine it will take its position along with the other home appliance robot.

### **6.3 Disadvantages:**

The disadvantages of this machine is almost at the position like near to zero. Unless we use it roughly it will never give anyone disturbance. As well as the user must be clean the machine after using it. It will help the user to keep the machine rust free and makes the machine's long existence in service. When the machine is under preparation of ruti the coil plate turns warmer so at that time the children should kept in a safe distance.

### **6.4 Future Plans & Scope:**

1. We will improve our control system to bring variation of thickness while preparing a ruti. The will choose the thickness level while commanding the instruction to the machine.
2. There will add an oil bucket in future edition.
3. We will make the machine more precisely as well as more children friendly and ensure more security for the all ages user.
4. A new control module will be added very which can use through mobile and get notification within a shortest time and the machine for next plan of the user.
5. We will introduce a robotic washing system of various components after usage. It can also be control through remote places by a user.

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## APPENDIX A

```
#include <Servo.h>

Servo servo;

int angle = 0;

void setup() {
  servo.attach(3);
  servo.attach(4);
  servo.attach(5);
  pinMode(6, OUTPUT);
  pinMode(7, OUTPUT);
  pinMode(8, OUTPUT);
  pinMode(9, OUTPUT);
  pinMode(10, OUTPUT);
  pinMode(11, OUTPUT);
  pinMode(12, OUTPUT);

}

void loop() {
  digitalWrite(6, HIGH);
  digitalWrite(7, HIGH);
  digitalWrite(8, HIGH);
  digitalWrite(9, HIGH);
  digitalWrite(10, HIGH);
  digitalWrite(11, HIGH);
  digitalWrite(12, HIGH);

  delay (1000);
  digitalWrite(6, LOW);
  digitalWrite(7, LOW);
  delay(8000);
  digitalWrite(6, HIGH);
  digitalWrite(7, HIGH);
  delay(1000);
```

```
digitalWrite(10, LOW);
delay(3000);
digitalWrite(10, HIGH);
delay(1000);
digitalWrite(11, LOW);
delay(1000);
digitalWrite(11, HIGH);
delay(1000);
digitalWrite(12, LOW);
delay(5000);
digitalWrite(12, HIGH);
delay(1000);
```

```
digitalWrite(8, LOW);
digitalWrite(9, LOW);
delay(8000);
digitalWrite(8, HIGH);
digitalWrite(9, HIGH);
delay(1000);
```

```
{ servo.attach(3);
```

```
  for (angle = 130; angle > 50; angle--)
```

```
  {
    servo.write(angle);
    delay(15);
  }
```

```
  for (angle = 50; angle < 130; angle++)
```

```
  {
    servo.write(angle);
    delay(15);
  }
}
delay(15);
```

```

digitalWrite(6, LOW);
digitalWrite(7, LOW);
delay(8000);
digitalWrite(6, HIGH);
digitalWrite(7, HIGH);
delay(1000);

{
  servo.attach(4);
  for (angle = 0; angle < 95; angle++)
  {
    servo.write(angle);
    delay(15);
  }
  { servo.attach(5);

  for (angle = 90; angle < 150; angle++)
  {
    servo.write(angle);
    delay(15);
  }
  for (angle = 150; angle > 90; angle--)
  {
    servo.write(angle);
    delay(15);
  }
}
{ servo.attach(4);
  for (angle = 95; angle > 0; angle--)
  {
    servo.write(angle);
    delay(15);
  }
}
}

```

```

}
{ servo.attach(5);

for (angle = 90; angle < 150; angle++)
{
servo.write(angle);
delay(15);
}

for (angle = 150; angle > 90; angle--)
{
servo.write(angle);
delay(15);
}
}
{ servo.attach(4);
for (angle = 95; angle > 0; angle--)
{
servo.write(angle);
delay(15);
}
}
}
digitalWrite(8, LOW);
digitalWrite(9, LOW);
delay(5000);
digitalWrite(8, HIGH);
digitalWrite(9, HIGH);
delay(1000);
}

```