P.O.V Display

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1 SYNOPSIS

Our project is a P.O.V display that works on the principle of persistence of vision. It aims at displaying text messages in air with the help of leds. The circuit contains our pcb being mounted on a high speed dc motor with 8 leds stacked up against each other on one extreme end of the board. The other extreme end contains counter weights to balance the force. As the motor rotates , so does our pcb and the leds, thus causing the vertically mounted leds to sweep a cylindrical area . We then simply take user input which is compared alphabet wise to theP.O.V display codes we have in memory. The 8085 microprocessor then uses this code that switches the various leds on and off at specific times to display the requisite message.This switching happens so fast that our eyes are unable to comprehend the difference between different frames and as a result the required message is displayed on the cylindrical surface being swept by the leds which appears to be floating in air.

2 KEYWORDS

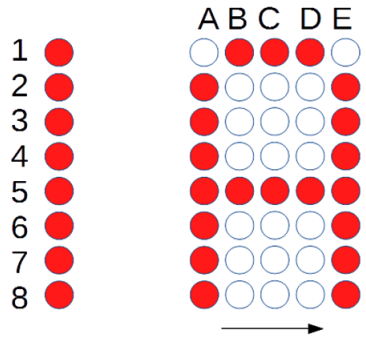
8085, Microprocessor , LED , POV , Hall sensor, DCmotor

3 INTRODUCTION

This project is brought to you by Abhishek Sagu (9/EC/14) and Amitesh Singh(24/EC/14),students of pre final year ECE, NSIT under the mentorship of professor Dhananjay V.Gadre for the course ECE-316 Microprocessors Lab

3.1 Working principle

This project as the name suggests is based on the principle of Persistence of Vision. Persistence of vision refers to the optical illusion whereby multiple discrete images blend into a single image in the human mind and believed to be the explanation form motion perception in cinema and animated films.



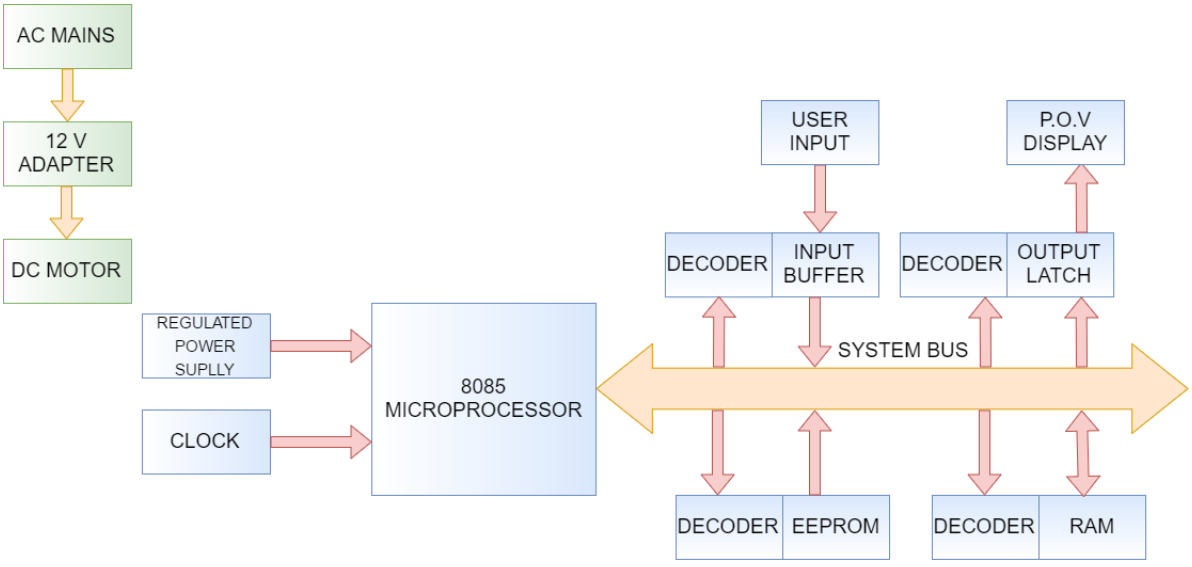
4 MOTIVATION

Our mentor Professor Dhananjay V. Gadre held a HAM Radio workshop in our 3 sem.On the first day Of the workshop, he demonstrated some projects which also included a project based on P.O.V. It was a top with pcb printed on it and when it spun, it displayed the no. of revolutions it has completed. So this idea stuck with us since then and when we got the opportunity to do a project , it was our first choice. In addition this is the kind of project that has output which is not just buzzer sounds or words printed on an lcd but words floating in air like we see in sci fi movies and shows like Star Wars or Doctor Who.

5 JUSTIFICATION

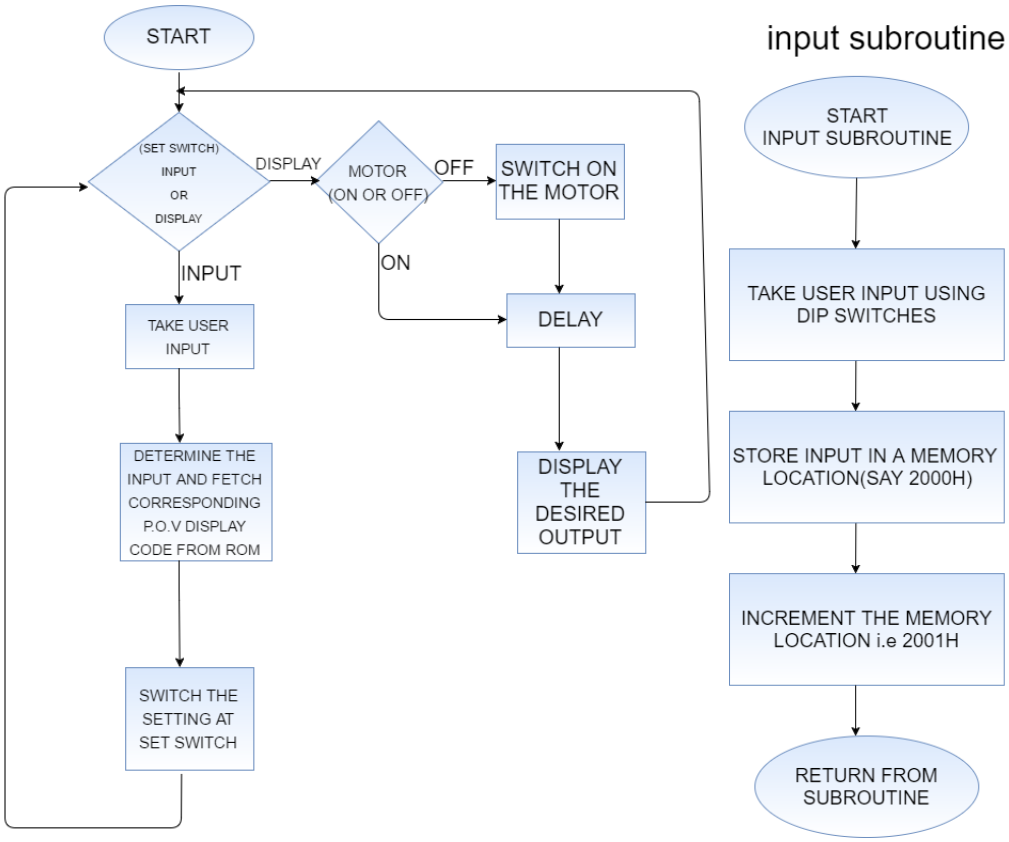
This project allows us to get acquainted with 8085 microprocessor architecture and the world of microprocessors in general .It exposes us to real life projects by making us create one ourselves and all the planning ,components shopping ,time management , teamwork , programming skills that we will acquire will greatly add to our skill set.In addition the principle of P.O.V that we are employing in this project is what we use greatly in our daily lives , be it our tv screens or the cartoon animation.It appeals to both the engineer and sci-fi fan in us and the output that this project has is like no other.

6 BLOCK DIAGRAM



* A single decoder unit will be used for ROM and EEPROM and same for input buffers and output latches

7 FLOWCHART FOR CODE

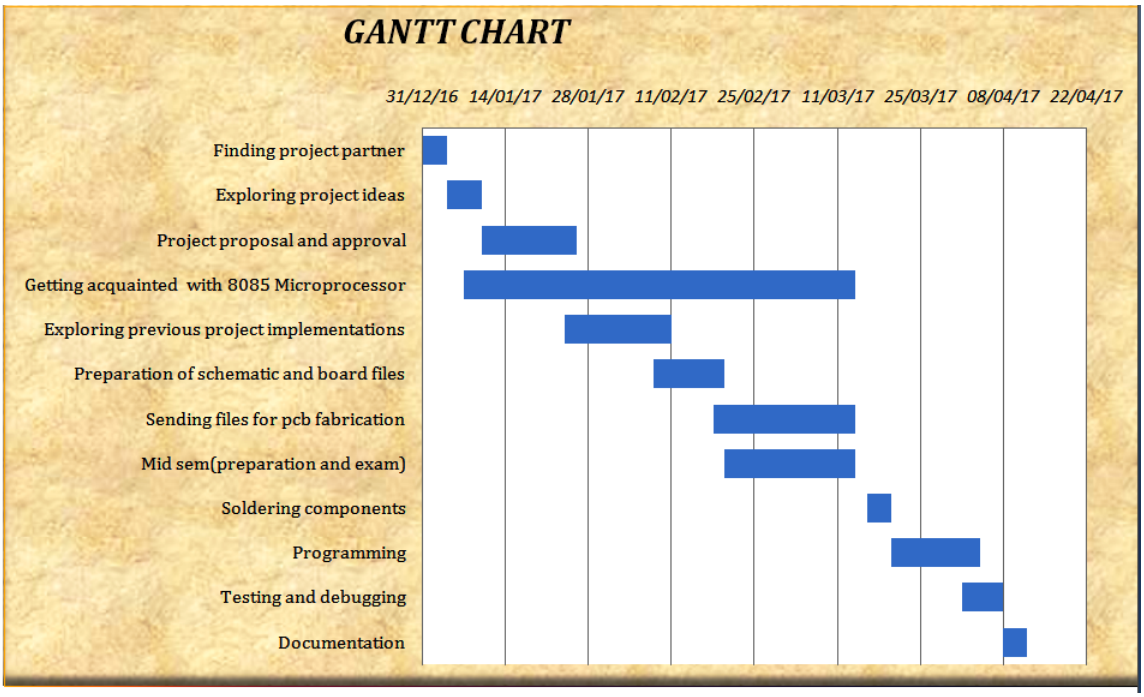


8 BILL OF MATERIALS

Table 1:

DEVICE	*DESCRIPTION*	*QUANTITY*
8085	Microprocessor	1
62256P	MEMORY(RAM) [32K X 8]	1
58C256P	MEMORY(ROM) [32K X 8]	1
74HCT573N	8-bit D latch BUS DRIVER	1
ULN2803A	Darlington Transistor Arrays	1
	HALL SENSOR	1
	LEDS(5mm)	8
DM74LS244	Octal 3-STATE Buffer/Line Driver	1
	Resistors	8
CRYSTALHC49US	Crystal	1
	12 V Adapter	1
	DC motor	1

9 GANTT CHART



10 REFERENCES

1.Ramesh Gaonkar. Microprocessor Architecture, Programming, and Applications with the 8085, Fifth Edition.
2. http://makezine.com/projects/persistence-vision-led-globe/
3. https://www.youtube.com/watch?v=P-it00ulKQU