CS 101 PROJECT REPORT

TEAM: 397

PLOT CLOCK

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1. INTRODUCTION AND PROBLEM STATEMENT:

There are many things a computer cannot do. One of them is to write on a piece of paper in real time using a pen.

We have planned to make a system that would first get the current time and write it on a sheet of paper

2. REQUIREMENTS

- HARDWARE:
  - Acrylic sheets
  - Servo motors
  - Gears
  - Castor wheel
  - Arduino UNO

- SOFTWARE:
  - CodeBlocks
  - Arduino IDE
  - Time Library

3. IMPLEMENTATION

i) FUNCTIONALITY

We are using ATmega328 microcontroller in Arduino UNO IC. A timer is created using an interrupt counter. The microcontroller will write the time by sending commands to the servo motors. This would be initiated by a user input and once initiated, will write the time at regular intervals until another user input is given.

The movement of the writing arms will be controlled using two servo motors coupled with a gear mechanism. One motor will control the forward and backward i.e. radial movement of the marker. Both claws will be attached to separate gears and both the gears will be intertwined. One gear will be powered by the servo motor which in turn will rotate the other gear in the opposite direction. This will provide the radial movement of the arm.

The arm and its assembly will be mounted on a platform. The angular movement of the marker will be controlled by another servo motor, attached to the platform.

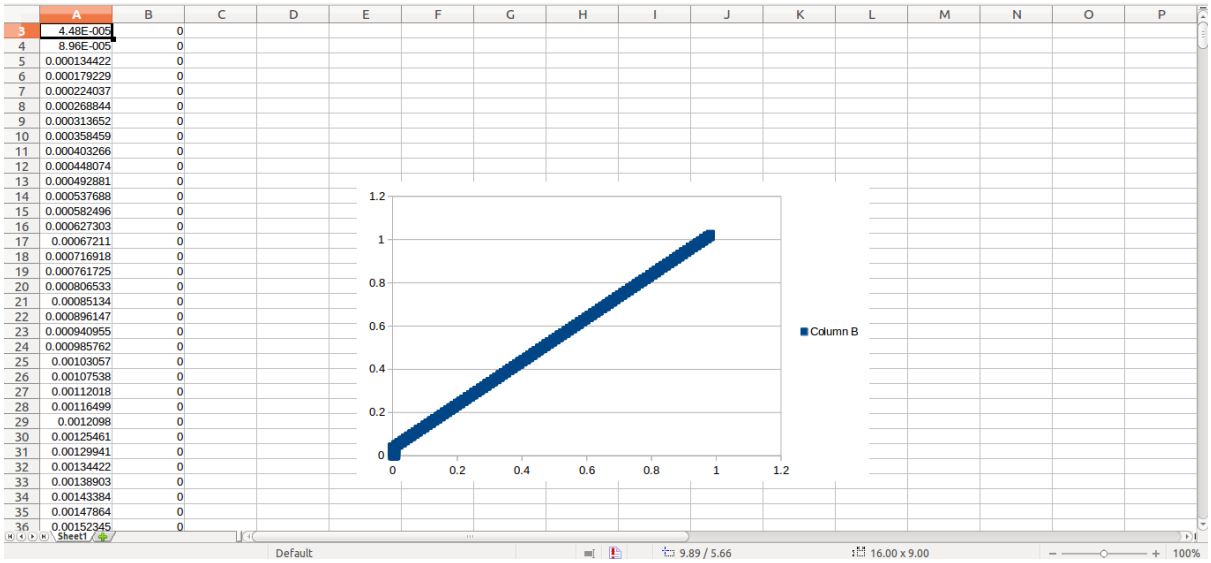
We will make separate functions for typing each digit from 0 to 9. Each function will consist of sequential statements for tracing out the particular digit. The writing part of the board is divided into five parts(HH:MM). After completing each digit the writing arm will position the pen at top right corner of the block. The subsequent function will be coded considering the top left corner as the starting point.

We are using the Arduino servo library

4. TESTING:

Though the Bot is not working due some mechanical inaccuracies, therefore to try the code we created files and store th values of x and y coordinates obtained, and then we plotted the points using Excel's Scatter Plot.

Here's a screenshot of the output we got



5. **FUTURE WORK** :

i) The system can be connected with Xbee to remotely control it from a PC.

ii) We can program the bot to write more characters (except numbers).

iii) The bot can be programmed to get voice input to make it a perfect scribe.

iv) A pen up and pen down mechanism can be implemented in the mechanics of the bot.

6.CONCLUSION :

Our bot can be generalised as **get time + write time.** It can be made into a full time **scribe** which can write everything(alphabets, number and special characters). Other than that it can also be used in production industry to move goods from one place to another.