Abstract

Project Title: - Pen Plotter

Team name - Big Hero 4

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Motivation- Hackathon project -assignment copier, Many times hand written data is required but it is easier to generate data in a word document format. Our Machine can be used in such a scenario.

Description - The project's aim is to process a word document and write down the content mentioned in it in user's handwriting on a piece of paper.

Broad vision – Things that can be added in future as extensions are, we can change the input method, this could take the shape of an auto-writer that could write down data from direct speech input into desired font on a paper. We can also modify it to copy signatures on a large scale on various official documents.

Demonstration -We plan to write down any inputted document by the user on a piece of paper in his/her handwriting.

Implementation – User will have to fill a form in which he will be required to write all the basic characters (alphabets, numbers, miscellaneous characters like @, + etc.) The Form will be processed as consisting of a large number of virtual squares, each square contains one character, Handwriting of the user will be recorded and during the writing step the paper will be divided into virtual squares and writing will be done square by square, adding one required character in each square.
Pen will be controlled by 3 motors for 3 motion along 3 axes.

Skills which we would learn : -

1. How to program arduino uno r3 .
2. How to control servo motors.
3. How to control stepper motors.
4. Image processing.

Items required: -

1 x Arduino uno r3
2 x Stepper motor
1 x Dual relay

2 x Easydriver
2 x 5V ldo
2 x Heat-sinks
4 x Stop switches
9 x Magnets
4 x Rubber feet
5 x Thumb screws
1 x 4mm Aluminum tube
2 x 3mm x 150mm Steel rod
1 x 3mm x 100mm steel rod
17 x m3 Micro barb
6 x m2 Countersunk (6mm)
6 x m2 Nuts
6 x m2 Pan-head (6mm)
8 x m2 Pan-head (8mm)
4 x m3 50mm standoffs
7 x m3 cap-head screw (8mm)
8 x m3 3mm nylon spacers

Estimated Cost: - Rs 5000

Plan of action:-

Week 1- Implementing the code required for processing the handwritten characters and storing them appropriately.

Week 2- Assembling the main body of Plotter and working on the overall hardware structure.

Week 3-Implementing and testing the code required for motion of the pen (using motors) according to input.

Week 4- Finalizing the Model, Working on any part that is still incomplete

Week 5Testing for various cases and modifying if necessary to achieve maximum efficiency.

References:-
Instructables.com