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Member :
Tejendhu M K

3-D printer

About the project:

What is it?

As the name name suggests i plan on building a 3d printer.Which would work by similar to the makerbot at TL.

Motivation

Our last ED lecture was about 3d printing(only lecture i was awake in).Throughout the lecture we were taught basic types of 3d printing and shown videos on how they work.In 1 video students at MIT just took apart inkjet printer added a stepper motor for Z-axis movement and a mechanism to add a thin layer of powder.That was it.One of the earliest 3d printers.

Last year somebody made a pen plotter for itsp.This will be pretty similar(will need an additional Z-axis).(It could also be possible to #Contact previous year ITSP guys and try to develop their product rather than starting afresh!)

This could also be easily modified to be used for SLS(selective laser sintering)provided the availability of a high power laser.

Parts:

Most of the mechanism for the x,y movements are going to be from last years plotter frame.they would need two stepper motors.

Timeline:

Week1:

learning about steppers,printers,basic research and experimentation for powder material to be used and mechanism for laying powder.

Week2

Tinkering with last year's itsp pen plotter(or 2nd hand deskjet printer depending on availability).Complete x and y axis mechanisms.

Week3 :

Build a z axis mechanism with a stepper and mechanism for laying out powder.

Week4:

Overall structure of printer and buffer time to catch up on delays,debug etc.

Week5:

Final testing of the printer and powder.

Cost:

Cost would depend on the condition of last yr itsp pen plotter.

Major costs:

3 Steppers,1continous servo and metal screw etc for z axis: Rs.1600

Stepper motor Drivers:Rs.900(tops)

Heating element:Rs.1000(tops)

(Rough estimate) Total:Rs.3500

Important Parts:

Imp parts other than last yr's plotter skelton :

3 stepper and lead screw

Most difficult part would be the heating element

Wires

Wood

Arduino

Stepper Motor drivers