Senior Design Group May15-03 Spring Report

Spring Report 1: 1/12/15-2/6/2015

Advisor: Leland Harker	Client: Hitachi Global Storage Technologies

Name	Major	E-mail(@iastate.edu)	Role
Jacob (JD) Mayer	EE	jdmayer	Team Leader
Matt Eckes	EE	mweckes	Communicator
Jacob Schulz	EE	jschulz	Key Concept Holder
Trevor Boone	SE	tdboone	Web master/ Key Concept Holder
Shawn LaGrotta	Cpr E	lagrotta	Webmaster

Past accomplishments

Task description	Person	Completion date
• Assembly of 3D printer • Math calibration correction based off two test points (MATLAB)	Matt	
• Assembly of 3D printer • Get custom parts made	JD	
• LCD operation decision tree implementation	Jacob	
• File Parse • Server framework	Trevor	
• Raspberry Pi setup • Server software installed • Firmware configured and flashed	Shawn	
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Plan for next week

Task description	Person	Goal date
Establish communication from website to robot	Trevor, Shawn	2/14/15
Implement calibration math into G-code generation	Matt, Shawn	2/14/15
Get/mount probe holder	JD ,Matt	2/14/15
LCD calibration protocol decision tree implementation	Jacob	2/14/15

Future issues

Task description	Person	Goal date

Individual hourly contributions

Name	1/12/15-2/6/15	Cumulative
Jacob (JD) Mayer	20	100
Matt Eckes	20	81
Jacob Schulz	20	61
Trevor Boone	20	78
Shawn LaGrotta	20	112

Summary

The first part of this spring semester has been surrounded around starting to put together the Probot design. The mechanical build of the robot was done my Matt and JD, by following the directions provided by users on YouTube. The build was difficult to do in that the instructions we were following was a slightly different kit. This meant that some parts were of different design and length. All in all the build went well and currently we are waiting for the custom probe holder to come back from the design lab. Once this part is in place we will be able to mount the probe and control its movement manually. Matt has worked out a calibration translation in order to correct the robots coordinate system to the HDD coordinate system. The translation is based off of two points.

Manual controls can be achieved by the LCD display of our design. Jacob has workout out a decision menu for the user to operate in order to move the robot is the X, Y, and Z directions. The next step is to incorporate a calibration protocol, in which, the user will select a point and an X or Y direction to move the probe tip to the desired spot.

The server side of the project has been done by Trevor and Shawn. Trevor has finished the backend of the server and worked out a way to parse the HDD files in order to get coordinates of the test vias. The next step is to plot these points on a GUI for the user to select points. Shawn has worked on getting the RepRap software installed so that controls can be sent to the robot for testing. In addition he has worked on the raspberry Pi configuration so that communication can be established from the website to the robot.

So far this semester we have been on schedule. This is attributed to setting up two 4 hour work blocks in the senior design lab. We hope to have the robot able to take commands and hit the correct via by spring break (March 13).