

Date: 3/3/2014

Group Number and Name	DEC14-08 / PUMA ROBOT
Client/Advisor	Dr. Greg R. Luecke
Attendees/Role	Nhat Pham / Communication Alex Grieve / Webmaster Matt Bogenschultz / Leader Zeyu Zhang / Key Idea Holder

Past week accomplishments

What was done, who did it, and when it was done

A: Matt verified approximate angle measurements of each joints, on sunday. J1 - 320, J2 - 250, J3 - 270, J4 - 300, J5 - 200, J6 - 530

B: Matt contacted theatronics.com and is in correspondance to get a username and password to gain access to the private library he has collected on PUMA robots over the years. His requirements are to give documentation as to what is done with our project.

C: Zeyu, Alex, Matt and Nett meet in the lab to assume circuit of robot.

D: Alex investigated multiple FPGAs and has determined that the MicroZed development board with the MicroZed I/O Carrier Card is the best option for the project. Details at end of report.

E: Nhat disassembled both robots and try to maps the pin for the last three motors. However; as a team we could not find any documentation for the motors, which we could not get the last three motors to turn. We are looking forward to meet with our Advisor to get more information and guidance.

F: Nhat did research on H-bridge and found a couple H-bridges IC which as a team we think it could be very efficient, and time saving.

Not online it has high potential in times but also with the H-bridge IC our final product would be smaller, and could possibly look better.

Plan for coming week

What to do, who, and when should it be done

A: Zeyu still working on the Servo control, try to draw the circuit.

B: Alex will get the MicroZed ordered and will start on the FPGA design document, specifically the design of the state machines.

C: Nhat will order transistors next week to test out H-bridge circuit. We are planning to get started on the H-bridge circuit for the top three motors which we were able to map the pin and were able to turn the motor.

D: Nhat will keep working on communicating with Dr Luecke to find a time to discuss our problem with mapping the rest of the pins, and the process to order parts.

Pending Issues

A: Tried to meet with Dr. Luecke twice last week but it didn't happen. We need to get his approval on our project plan so we can continue to move on with the project.

B:

C:

Individual Contributions

A: Alex started a bill of materials document so we can order parts and start building circuits.

B:

C:

Individual hourly Contributions

<u>NAME</u>	<u>Hours this week</u>	<u>HOURS Cumulative</u>
Matthew Bogenschutz/ Leader	6	15
Nhat Pham / Communication	7	17
Alex Grieve / Webmaster	8	30
Zeyu Zhang / Key-Idea-holder	6	16

Comments and extended discussions:

The MicroZed has a Xilinx Zynq 7000 programmable system on chip that is an FPGA with two 32-bit ARM processors built in. It also has 1GB of dedicated RAM, Ethernet, USB OTG, and communication over UART. The I/O Carrier Card extends the MicroZed by adding 12 extra PMODs, which should be enough to control both PUMA robot arms. The idea is that this is a low cost option that can also be used for other projects in Dr. Luecke's lab.