

Group Number and Name	Dec14-12
Client/Advisor	Bong Wie
Attendees/Role	Sean Nichols/Leader, Chi Hoe How/Communication, Yishu Mei/Webmaster/ Meng Lu/Advisor

Past Week Accomplishments

- **Chi Hoe / Sean** - Found that we can use our camera input solution from Cpre488 lab. We will use the ON Semiconductor Camera module that is both unreliable and at a much larger resolution. This will cost processing time.
- **Sean** - Found that K-means clustering algorithm would work well for multiple object detection in our application because it is relatively fast.
- **Yishu** - Found some information and videos on OpenCV.

Plan for Coming Week

- **Sean** - Find way to interface with AXI4-Stream video protocol to have hardware automatically store matched pixels as they are clocked into the FPGA. Please refer to extended discussion below.
- **Chi Hoe** - Begin planning to implement K-means clustering in software.
- **Chi Hoe / Yishu** - Find a way to get stepper motor to work

Pending Issues

- If we chose to use it, we would need to port OpenCV to the stand alone ARM processor. Instantly, we lose multi-threading and therefore, speed. Speed is of up-most importance in this system.
- Stepper motor is still unreliable

Individual Hourly Contributions

<u>Name</u>	<u>Hours this week</u>	<u>Hours Cumulative</u>
Sean Nichols	6	41
Chi Hoe How	6	30
Yishu Mei	8	28

Comments and Extended Discussions

- Having the hardware do pixel matching would greatly increase the speed of our system, especially now that we are dealing with a high resolution of 1920x1080p. This way the software does not have to index through a ~2Mbit array and perform branches on each element. The problem is now to get the matched data up to the DDR3 memory such that the ARM processor can directly access the match data to perform K-means clustering on it. DMA?