

Computer Controlled Aiming and Tagging System

Spring Progress Report



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Project Scope

- Background and Problem Statement
- Final Concept Changes
- Project Status
- Preliminary Testing and Data
- Potential Issues
- Remaining Schedule
- Conclusions

Project Review

- Real time analysis to test the ability and accuracy of C-CATS program
- Old Way:
 - Run dynamic cable testing with cameras and data sensors
 - Hours of post processing to evaluate data
 - Must start all over if the data is bad

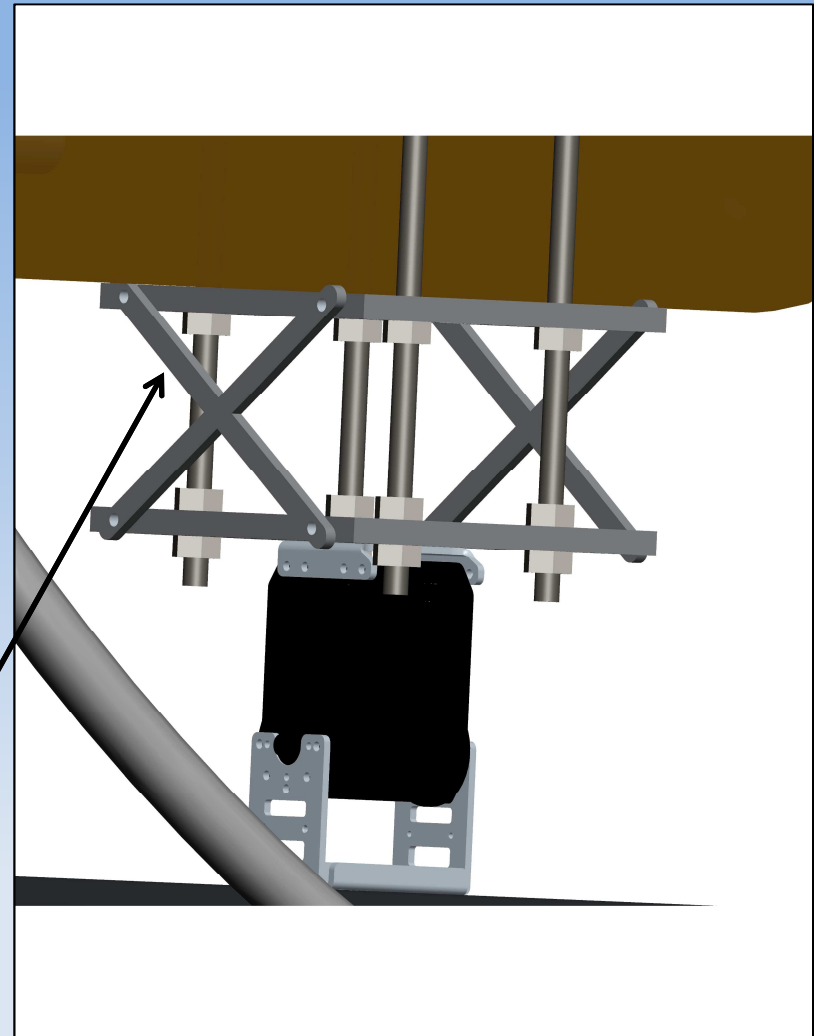
Revised Problem Statement

- Solution:
 - System with ability to see the accuracy immediately
 - Real time mark on target to collect data
 - Immediate feedback for good run/bad run
 - Power Source wall plug
- Project Goal:
 - Tagging system that can be statically tested for accuracy, repeatability, fire latency and safety

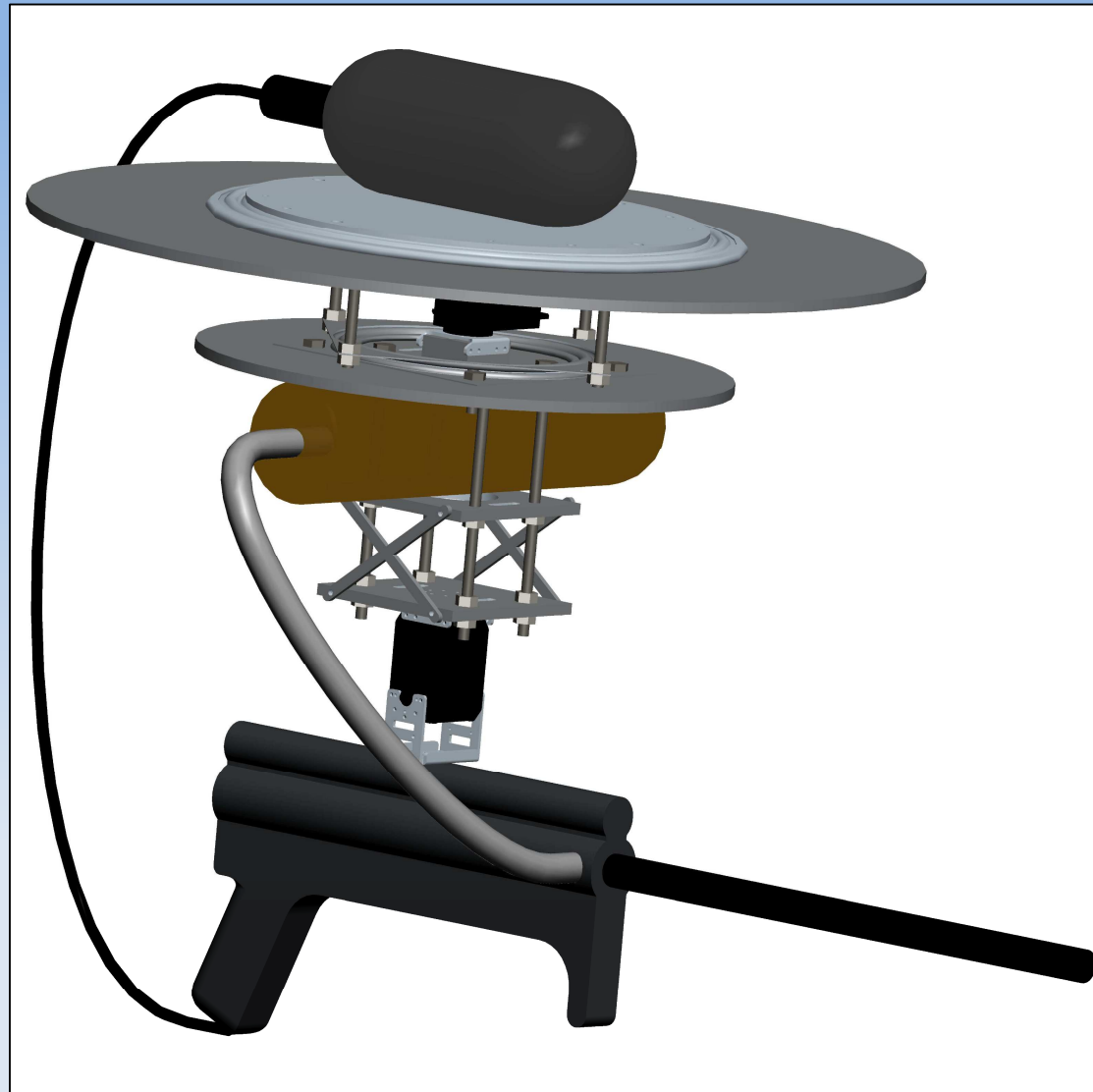
Concept Changes

- Previously had no support between extension plates
- Keeps it from rotating
- Machining 1/8th inch aluminum X brackets

New Brackets



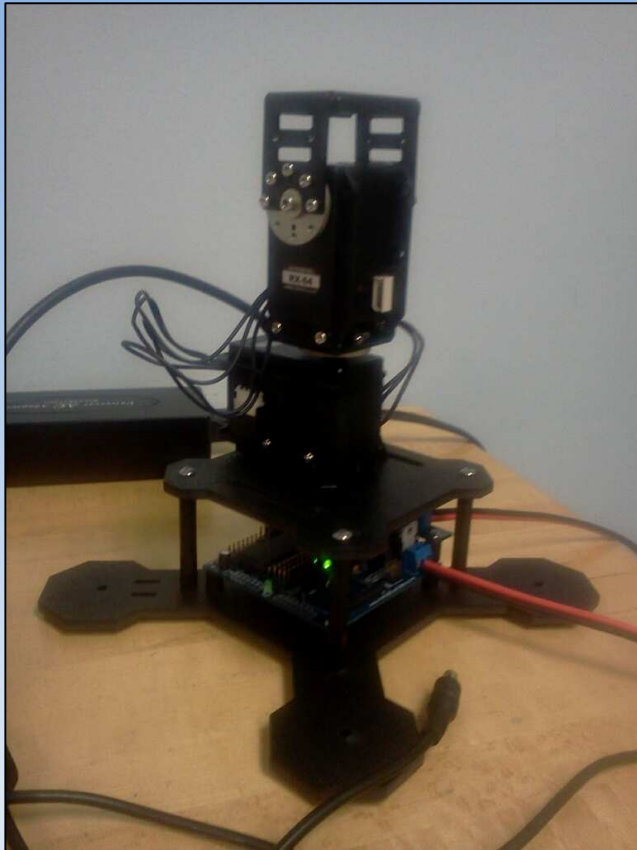
Final Concept



Project Status: Machine Shop

- All mechanical components are designed and waiting to be machined
- Machining will be done by the end of the week
- Turret assembly will begin within the week

Project Status: Motors and Controllers



- Controller is in the process of being programmed
- Implementing libraries and ID's to get motors moving this week
- Start running feedback tests as soon as operational

Project Status: Firing Marker

- All components are in
- It is fully assembled
- Testing hoses and pressure tanks for leaks/failures
- Initial testing of barrels and paints has begun

Test Range



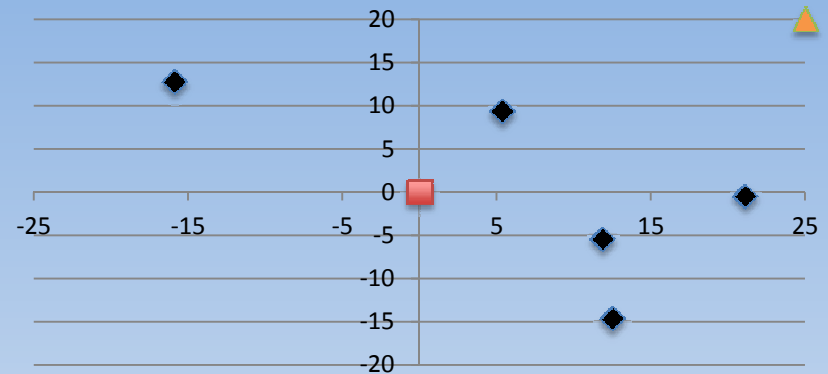
- Stock Barrel Mark
- 14 in Hammerhead
- 16 in Hammerhead



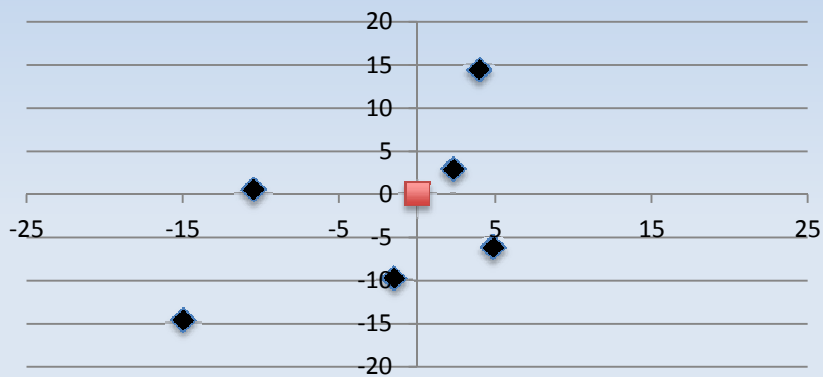
Graphs

- 12.5 yards
- Constant Velocity
- Rap4 G.O.L.F. Paint
- 0.683 Gauge Diameter

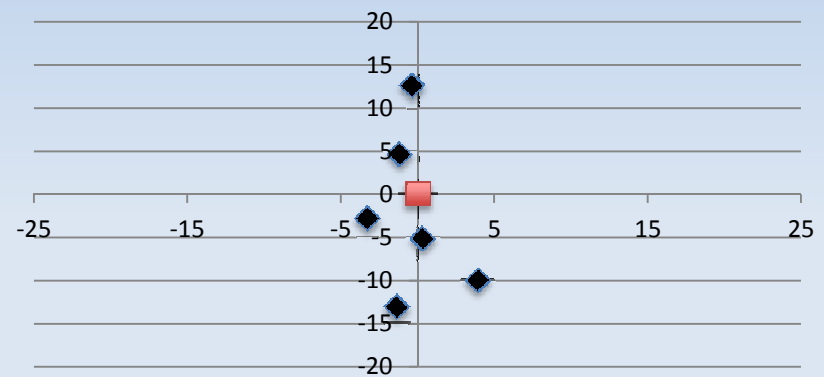
Stock Tippmann A5 Barrel



Hammerhead 14 in. Rifled Barrel



Hammerhead 16 in. Rifled Barrel



Units in cm

Preliminary Test Conclusions

- 16 inch Hammerhead Barrel
- The G.O.L.F Paint might not be the best paint
- Need to check from full distance
- Change muzzle velocity



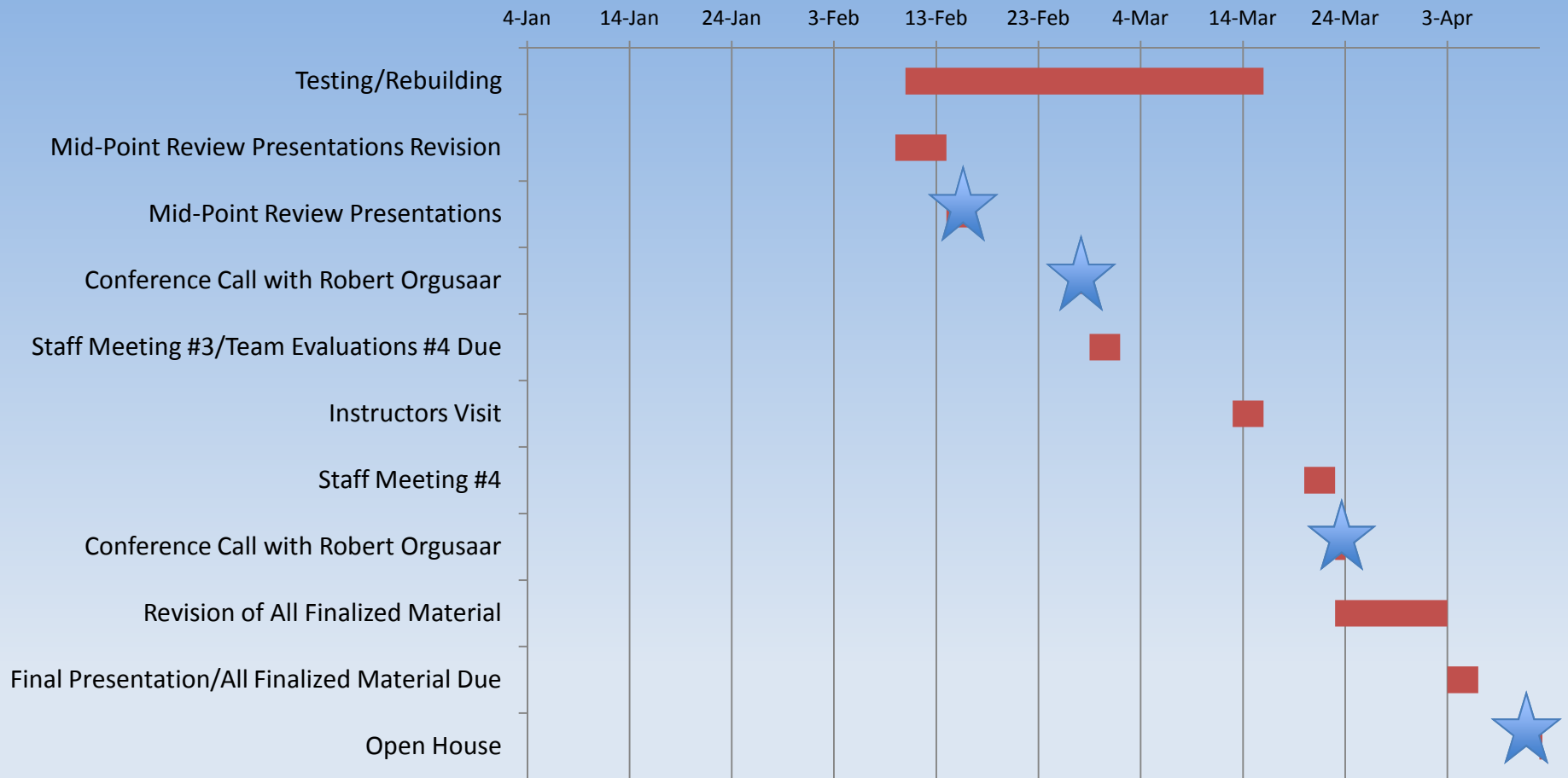
16 in Barrel Grouping

Potential Issues

- Wiring Electronic Trigger
 - Could possibly short circuit system
 - Discuss with EE majors
- The 16 inch barrel is actually about 20 inches



Remaining Spring Schedule



Project Conclusion

- Focus on motor and controller communication
- Solve electronic firing mechanism issue
- Gun accuracy testing and data collection
- Have components machined by this week
- Begin building prototype next week