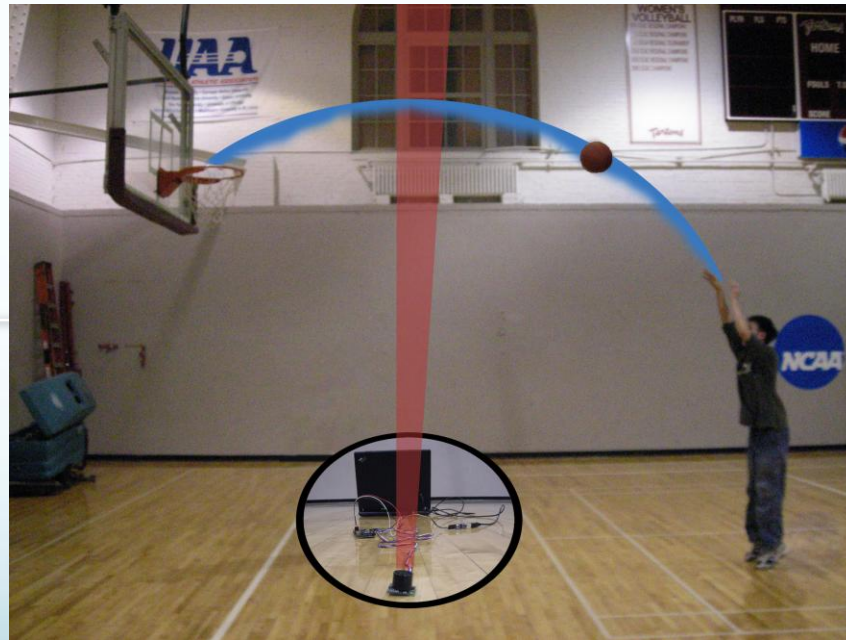


Fabulous 4

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www.ece.cmu.edu/~ece549/spring09/team14/index.html



Status Update

What we've done

- Connected all 4 sonar sensors to the gumstix
- Verified the sensor data collected is accurate
- Started writing algorithms to extrapolate the shot arc

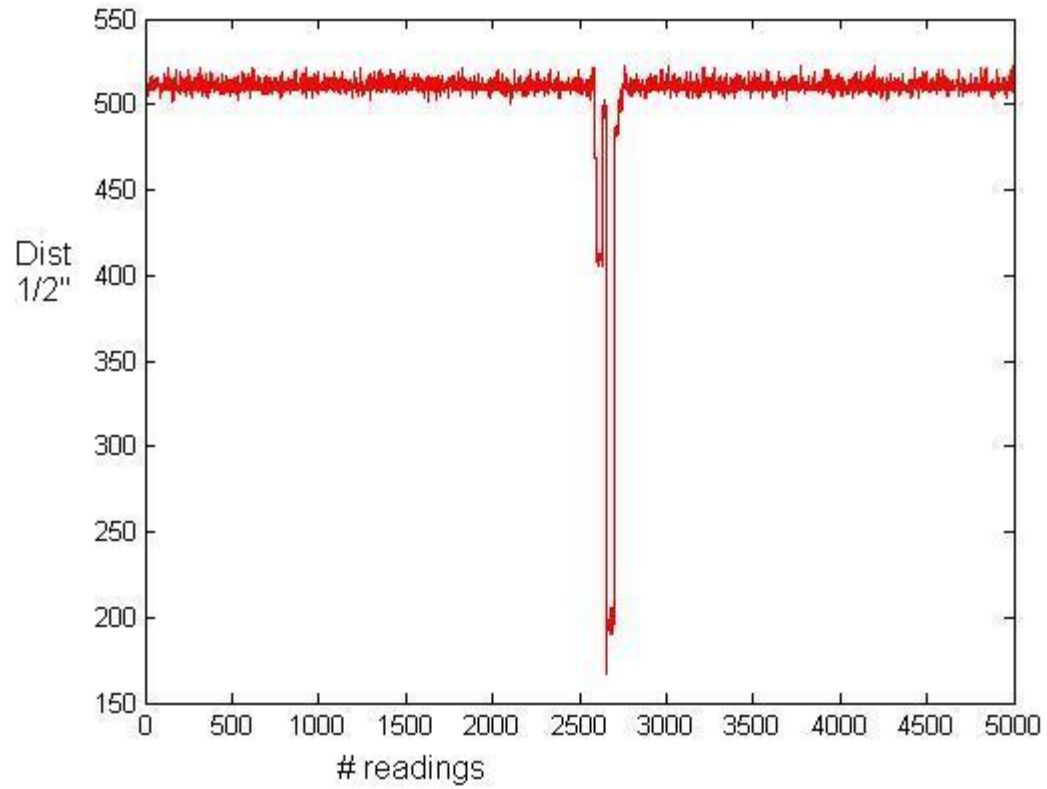
Risks mitigated/Assumptions made

- Gumstix is unable to drive enough current to all the sonar, thus external power is being used
- Signal interference
- Our sensors will be protected from impact of ricocheting ball(not yet)

Test Plan

- Power On/Off
- Roof: make sure each sensor produces consistent data how: position the sensor toward the ceiling, it should produce a consistent reading(with minor noise).
- Simple passes : setup all 4 sensors, space them apart and throw a few passes across them. We will video tape the process, approximate the actual distance and use it to verify the sensor readings are accurate.
- Free throw : verify the correctness of the system. The user will shoot 20 free throws. We will video tape the process, analyze the shot arc from the video, use that to verify the shot arc we extrapolated from the sensor readings are correct.
- I/O Device
- Useless Data : If the user shoots so far off the target(or the sensor data is corrupted somehow) that we can't t reconstruct an arc that makes sense with the data collected, the system should tell the user to shoot again rather than calculating with useless data

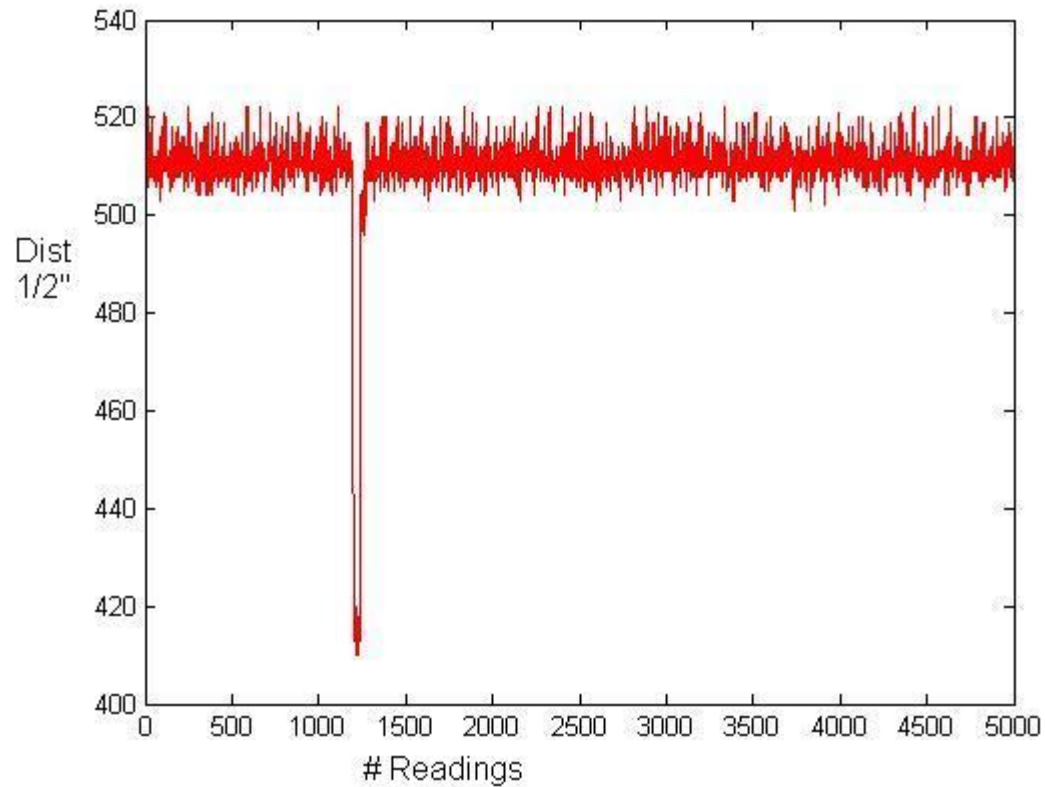
Data1



Video



Data2



Plan Ahead

- Buy a basketball hoop and get harness made with fixed distance to ensure reproduceable evaluation.
- Metrics – Predict basketball arcs within +/- 1 degree; reliability: capture basketball shot 90% of the time.