

Senior Design Project Data Sheet

Project #	Project Name	Project Track	Project Family
07301	Vehicle DAQ	7300	7300
Start Term	Team Guide	Project Sponsor	Doc. Revision
2006-01	George Slack	Dr. Hensel	

Project Description

Project Background:

The DAQ subsystem is one of several subsystems to support vehicular and robotic platforms. The DAQ team is to design, build, and test electronic hardware and software to meet current and future customer requirements. To do so, this project must be scalable, programmable, reusable, and reliable.

Problem Statement:

The DAQ team is to design a system that can acquire, condition, and store data from sensors (temperature, pressure, etc.) located on another subsystem.

Objectives/Scope:

1. Divide team into effective groups based on interest and expertise
2. Meet with customers to discuss needs
3. Research PC104 architecture to develop DAQ interface
4. Look into all sources for distortion to develop necessary signal conditioning
5. Develop power circuitry to achieve 1 hour run time on 12V battery
6. Scale design to fit on board (board size determined by platform size)
7. Meet with members of other subsystems to ensure quality communication between each subsystem (matching interfaces, conditioned input, etc.)
8. Design so DAQ does not require more than 25% of total processing capability
9. Design to store data on local 2GB of shared flash or on remote PC

Deliverables:

- Plan and schedule deadlines
- Develop detailed specifications based on customer needs
- Develop multiple concepts and select the most feasible
- Develop a system-level design
- Prove concept of design with breadboard or simulated circuitry

- Develop detailed design to meet all customer needs
- Develop detailed test plan to test DAQ for all customer needs
- Develop a project plan for SDII
- Project review
- Finalize full system design
- Develop full feature, full function alpha prototype
- Develop testing to verify that the DAQ meets all customer requirements
- Document specifications, highlights, and results
- Project review
- Product Manual

Expected Project Benefits:

The DAQ subsystem will be able to acquire, condition, and store data locally or on a remote PC. This subsystem will be adaptable to interface with the vehicular and robotic platforms, as well as future projects.

Core Team Members:

- Mohammed Al-Shehri
- Zakariya Al-Sulaimi
- Jason Hayes
- Andrew Keegan
- Rong Li
- Daniel Pintar
- Ian Weber