

Custom Data Acquisition System for the Cal Poly Racing Baja Team

A Senior Project Report

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Bachelor of Science in Computer Engineering

by

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Chapter 1

INTRODUCTION

Baja SAE is an international collegiate competition run by the Society of Automotive Engineers (SAE) where teams design, build, test, and compete with offroad baja style vehicles. In the United States, there are three competitions held each year across the country for teams to compete in. There are three categories of events for which teams are scored: static events, dynamic events, and the endurance event. Static events include different challenges to test a team's ability to effectively communicate design choices and business aspects of making a vehicle. Dynamic events test the abilities of the vehicle to perform in different conditions. These events include an acceleration event, a maneuverability event, a suspension event, and a traction event. Finally, the endurance event tests the vehicles and drivers ability to withstand rough terrain and wheel to wheel racing for a full four hours. At the end of the competition, all the event scores are added together to determine who the top three overall teams at the competition are. To win the competition, it is crucial to perform well in all three styles of events.

Cal Poly Racing competes in the Baja SAE series of competitions. Over the last several years, Cal Poly Racing has had a moderate amount of success, with several place trophies in dynamic events.

Chapter 2

BACKGROUND

Chapter 3

FORMAL PROJECT DEFINITION

Chapter 4

SYSTEM DESIGN AND IMPLEMENTATION

Chapter 5

SYSTEM TESTING AND ANALYSIS

Chapter 6

CONCLUSION

Chapter 7

REFLECTIONS