



Load Data Acquisition with MSVI

It finally happened!!!

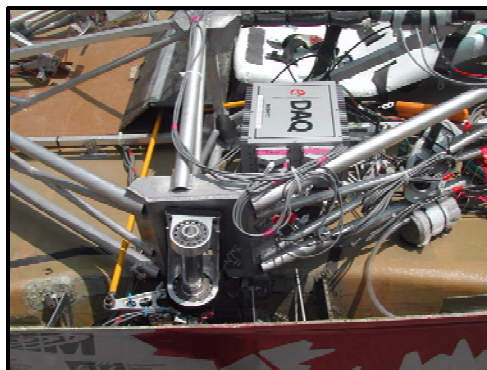
After a lot of preparation, Midnight Sun VI was taken out on June 1st for a test drive. Equipped with strain gauges (sponsored by Interotechnology) and an e-DAQ data acquisition system (provided by Practical Application of Technology), MSVI took on the task of collecting data for future car designers. Never before had actual load data been collected, and up until this point car designs had to rely purely on estimates. Once the collected data is evaluated, the mechanical design of future cars can rely on this "real world" data. Fatigue analysis of car components will then be possible since a time history of data typical for solar car driving conditions was generated.

But let's start from the beginning...

In January the decision was made to acquire actual data for our solar car. After consultations with Steve Lambert of the Mechanical Engineering department and advice from Al Conle at Ford Motor Company, the idea was actually put into execution. Practical Application of Technology came on board as a silver sponsor and provided a SoMat eDAQ data acquisition system. Since the team had no experience with strain gauge instrumentation, Bryan DeBruyn of Practical Application provided expert knowledge that was very instrumental and much appreciated. Through the course of the winter term, the gauge positioning was determined. Gauge failure was taken into consideration such that the acquired data would still be sufficient to fully determine the load state of the car. In April/May, the gauges were applied to MSVI by Tom Gawel. The week before the test, all gauges were checked for functionality, errors eliminated and a test schedule created. With the goal of determining loads for known scenarios (breaking, cornering, and bumping) and identifying load cycle characteristics for a fatigue analysis, MSVI was first taken on an hour drive to and around Conestogo. During this test, the attempt was made to capture all road conditions possible. Following this, set scenarios were tested in a parking lot at the University.

The evaluation of the data collected remains to be done. This in itself will be a very interesting project. This evaluation will make use of nSoft, a powerful data analysis software package produced by nCode International. Practical Application of Technology have offered their support in this data evaluation and will bring first hand insight of real life engineering applications.

For the team it was a very interesting day where valuable information was obtained. The project also showed that MSVII's team, along with external support & sponsors, really is a team. It's great to be part of a group that is dedicated and pulls together when necessary. Thanks to everyone, that made this testing day a success!



For More Information, please contact:
Practical Application of Technology Inc. B2-490 Dutton Dr., Waterloo, ON N2L 6H7
TEL: 519-570-1353 FAX: 519-570-1415 E-Mail: info@patech.net

