Gentex Corporation
Anthony Boorsma & Danny VanderSpek (Juniors)
Electrical and Computer Engineering Concentration

About Gentex
Gentex Corporation, founded in 1974 and based in Zeeland, Michigan, specializes in the research, development, and production of electrochromic (EC) automatic-dimming mirrors for the automotive industry (96% of sales), in addition to fire protection products (4% of sales).

Gentex employs over 2,300 people. Its manufacturing facilities have a current estimated capacity to produce 25 million units annually.

Engineers play an important role at Gentex to design and implement highly complex and advanced technologies in the auto-dimming mirrors, such as SmartBeam, Rear Camera Display, Compass readouts, and HomeLink.

Gentex has four foundations that are the basis of their behavior and culture. These are Quality, Technology, Ownership Mentality, and Unpretentious Management.

Anthony Boorsma: Combo Testers Group
About the Group
The combo testers group, made up of roughly ten engineers (mostly software engineers), designs and maintains the combo tester, a very powerful line tester designed to simultaneously test the electronic components on every EC mirror’s printed circuit board (PCB) at a very fast throughput. The combo tester helps ensure maximum quality of the electronic assembly process while minimizing valuable production time.

How Anthony Helped
• Worked on organizational projects (mostly software-based)
• Used proprietary software written by one of Anthony’s team members to facilitate the testing and production of the testing modules in the combo tester.
• Worked with debugging, fixing, and retrofitting the combo testers and those testing modules.

What Anthony Learned
• The manufacturing process and the differences in corporate structures.
• How software and hardware gets integrated to effectively test an electronic product for problems.
• The importance of detail-oriented engineering design and good communication between team members.
• The importance of having a liberal-arts education that teaches a broad range of topics, enabling one to be able to communicate adequately about many different aspects of engineering.
• The daily importance of understanding statistics in order to determine component failure trends and their causes.

Danny VanderSpek: Final Assembly Testers Group
About the Group
The final assembly group, made up of six test engineers, designs and maintains the test equipment used on the final assembled EC mirror product. It is their job to make sure that all of the mirror’s functions (Rear Camera Display, dimming function, Compass, etc) are calibrated and working properly before the mirrors are sent out to the manufacturer. The final assembly testers group faces both hardware and software aspects of electrical engineering.

How Danny Helped
• Built and updated several different FA testers, tester PCBs, and patch cords (data communication interface cables).
• Designed application using Visual Basic to increase organizational efficiency of data files.
• Worked with database information and histograms to draw conclusions about specific tester information.

What Danny Learned
• How the manufacturing process works.
• The importance of good, friendly communication and teamwork between different groups of people (eg. line workers and test engineers).
• Valuable hands-on electrical engineering skills, such as soldering (including surface-mount), wiring, and general electronic hardware construction.
• How to program in Visual Basic.
• The applicability of several concepts learned in both engineering and non-engineering classes alike.
• Many other life lessons that will make for a well-prepared professional engineer in the future.