Project Plan Update

Ben Hainsey Nicole Walsh Eric Hebner
Team 2 – Biaxial Tensile Tester
Sponsor: Cummins Inc
Faculty Advisor: Dr. Oates
Graduate Assistant: Parker Harwood
1/17/14

Contents

Project Scope, Goals and Objectives

The objective of this project was to design and prototype a biaxial tensile testing machine. This machine must be implemented into a uniaxial MTS machine without altering the existing machine. This is to be accomplished so that gasket materials at Cummins Inc. could be tested.

Newly Developed or Unanticipated Issues

The main change in our project was the fact that one of the members was no longer part of the university. This made is much more difficult to meet up because the member was no longer obligated to come to the university. A simple solution was established and operations began moving the correct direction again.

Modifications and Changes to the Project

The design of our biaxial tensile test machine has undergone some major revisions from the final report. The main improvement involved decreasing the amount of cabling used. The calibration of the cabling during testing is a major concern. So by using less cable in shorter lengths it is anticipated that the adjustment needed while testing will be significantly reduced. The finalized design allows for better access to the specimen being tested. This will improve the setup of our machine; along with being more user friendly. The new design will provide a stable surface for the video extensometer to be mounted; the location of the camera was undetermined in the previous design. The final design is also much more cost efficient; this allowed

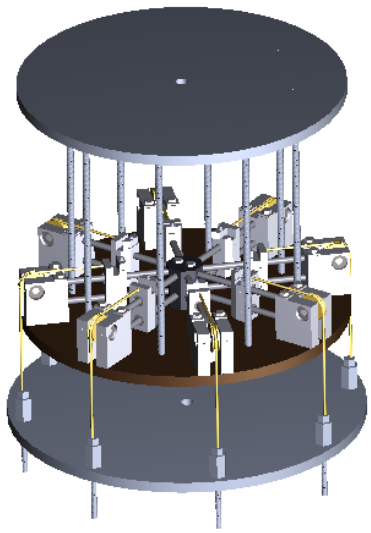


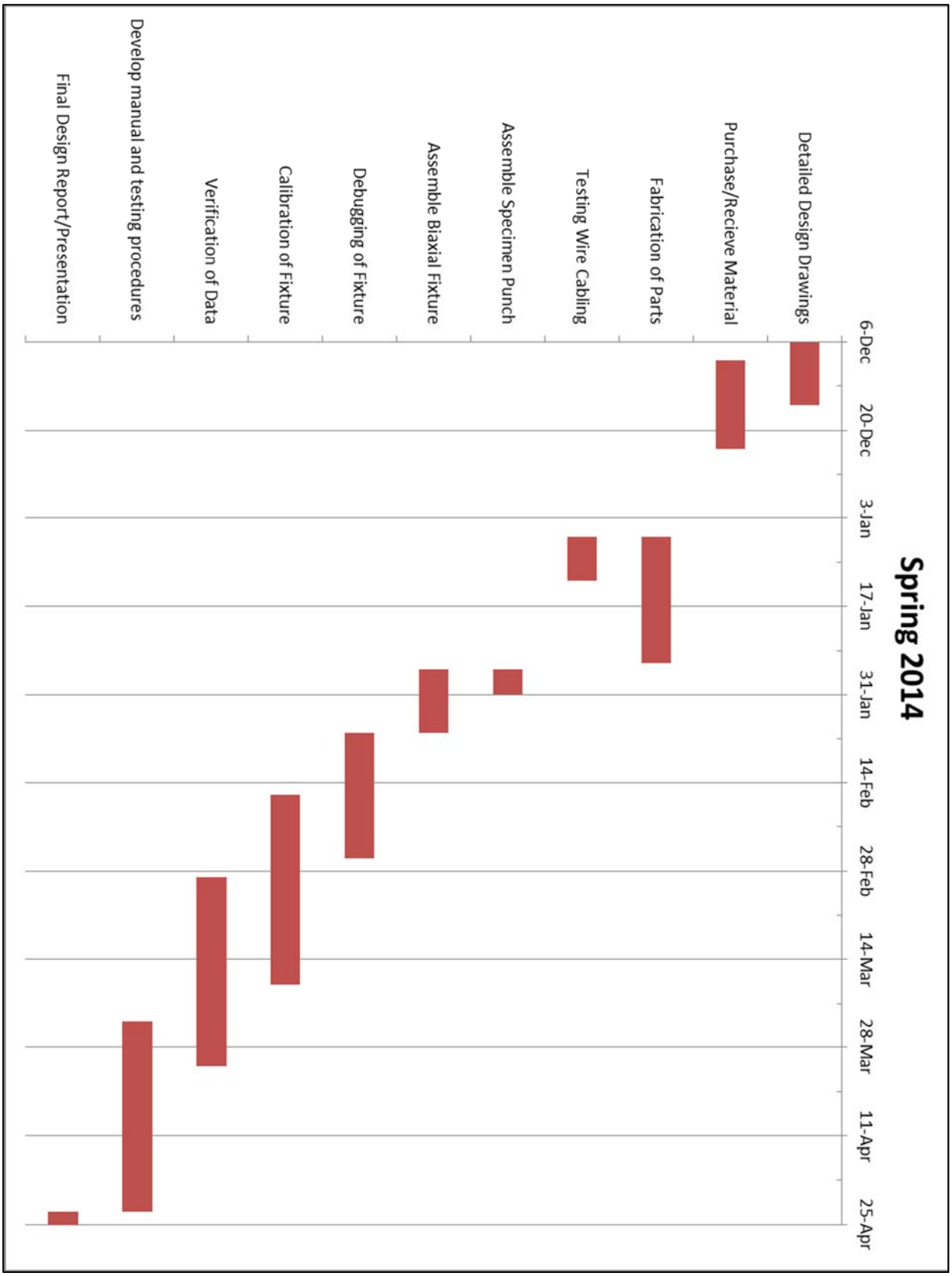
Figure 1: Updated Biaxial Machine

us to purchase better quality parts because the quantity needed was greatly reduced. A representation of the changes can be seen in the model of the completed design in Figure 1.

Procurement, Milestones, and Scheduling

Currently, our group has procured nearly all of the raw materials and hardware for our design. The materials not yet acquired are the linear bearings which have been ordered and will arrive before the end of the month, and the attachment hardware for the cables. The cable attachments will be ordered once we have selected an appropriate cable from our test samples, and lead time should be less than two weeks. Otherwise, our milestones remain the same and we are on the same timeline as our previous report.

Gantt chart


Spring 2014
6-Dec
20-Dec
3-Jan
17-Jan
31-Jan
14-Feb
28-Feb
14-Mar
28-Mar
11-Apr
25-Apr
Detailed Design Drawings
Purchase/Recieve Material
Fabrication of Parts
Testing Wire Cabling
Assemble Specimen Punch
Assemble Biaxial Fixture
Debugging of Fixture
Calibration of Fixture
Verification of Data
Develop manual and testing procedures
Final Design Report/Presentation