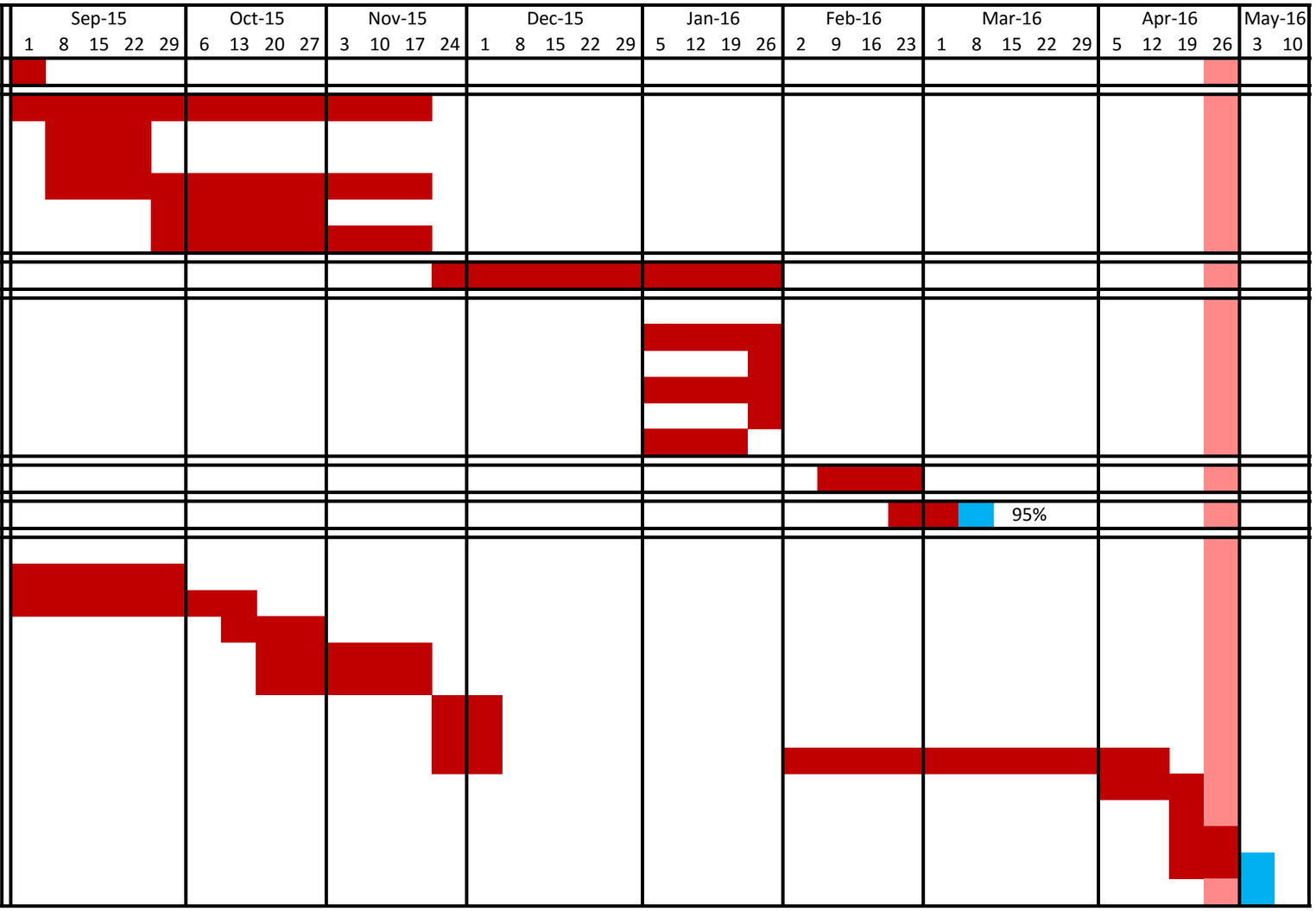
TASK NAME	RESPONSIBLE	Date
General System Design	All	September 4, 2015
Stator Design		November 17, 2015
Research Winding Types	Tim	September 22, 2015
Pole and Slot Pitch	Mason	September 22, 2015
Pole Depth	All	November 17, 2015
Slot/Teeth Ratio	All	October 27, 2015
Number of Coil Windings	All	November 17, 2015
Purchasing	All	November 30, 2015
Construction		February 2, 2016
Coil Windings	Mason and Tim	January 25, 2016
Stator Mount	Mason and Tim	February 8, 2016
Microcontroller Sytem	Tyler	February 8, 2016
VFD Programming	Tyler	February 8, 2016
Sensor Programming	Tyler	January 25, 2016
Implementation	All	February 9, 2016
Testing	All	March 7, 2016
Deliverables		
Project Proposal - Oral Presentation	All	October 1, 2015
Project Proposal - Written	All	October 15, 2015
Webpage Release	All	October 28, 2015
Fall Progress Presentation	All	November 19, 2015
Fall Performance Evaluation	All	November 19, 2015
Fall Performance Review	All	December 3, 2015
Design Review	All	March 1, 2016
Final Report Draft	All	April 12, 2016
Oral Presentation Preparation	All	April 19, 2016
Final Project Oral Presentation	All	April 21, 2016
Poster Presentation to IAB	All	April 29, 2016
Final Project Report	All	May 3, 2016
Project Website Verification	All	May 3, 2016



The LIM team took the wheel off of the system to perform additional testing of the LIM to determine why force was not being produced. The team decided to disconnect the VFD and connect a DC power supply to the LIM. The DC power supply was used to energize the coils to produce a magnetism to allow for the group to determine the polarity of each coil. The DC power supply was set-up to output a current of 3 [A], as the group designed the stator to operate at 3 [A]. The group then took a screw to each stator tooth to see if the coils were magnetized. The screw was attracted to each stator tooth proving that the stator teeth were indeed producing a magnetic field. Mason and Tyler then went and purchased a compass in order to determine which teeth were a North or South pole. Moving the compass along the energized stator coils Tyler and Mason determined that one of the coils was connected incorrectly (was a North and not a South pole). Switching the polarity of the coil the group then was able to reattach the simulated linear track and the VFD.

The small change allowed for the LIM to rotate the simulated linear track. The wheel needed a small push in order to overcome the static friction force. Operating the VFD at 60 [Hz] the LIM provided a constant force to the wheel allowing it to continually rotate. The speed achieved at 60 [Hz] was not as originally expected, thus showing the inefficient nature of a LIM. It was determined that the majority of the inefficiencies were due to the simulated linear track. The copper track of the simulated linear track had no steel backing, therefore creating more flux leakage losses into the plastic of the wheel. The group added steel backing behind a portion of the copper track to test if the speed would be increased. It was determined that as the wheel rotated and the metal backing portion of the wheel rotated toward the LIM the wheel would increase in speed and then slow down when the metal backing was no longer by the stator.

Industrial Advisory Board Poster Presentation took place on 4/29/16.

Future work before the LIM team graduates would be to take the copper track off of the wheel and add a steel backing behind the copper track and test the wheel once again to see if maximum designed speed can be reached (1,200 [rpm]). The thicker the steel backing the less losses due to flux leakage will occur. The group designed the mounting solution to allow for the wheel to be moved up and down in order to allow for backing to be added to the copper track.