

# Report of Combined data files from Spring 2017 and Spring 2016

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The lookup table consists of combined data: the ID Number consisting of Zainab\_4-x-xxxx is from the spring of 2017 collected with constant supply voltage of 91.5V and ID Number of Spring\_2016 is from the spring 2016 collected with supply voltage if 89.7V. The analysis of the spring 2017 data is done in *Report on Usefulness of Data Collected and Plausibility of the Electric Car's Motor*. This data was limited because the experimental data did not cover low values of load torque and low motor speeds.

For a more conclusive characterization of the motor and motor controller system, data collected in spring 2016 was combined with the 2017 data, to make up for the missing low load torque and low motor speed data. Unlike the 2017 data file which is cleaned up, 2016 data is the raw data found in the ECE 492 records. To compensate for the difference in constant voltage used for the 2016 data, a new current is used after adjustment shown in equation 1.

$$P_{ELECTRIC} = 91.5I \quad \text{Eq.1}$$

Where 91.5V is constant voltage in the 2017 experimental data collection and  $I$  is the original supply current in the 2016 data. To adjust to the 89.7V, the new supply current used is shown in equation 2.

$$i_{NEW} = \frac{P_{ELECTRIC}}{89.7V} \quad \text{Eq.2}$$