DMr Performance Suspension, located in Fort Wayne, Indiana, is a business specializing in custom suspension solutions for performance motorcycles. The company is seeking a spring rate test machine in order to verify the claims of spring suppliers and increase the accuracy of their custom suspension solutions with coilover shocks and fork springs. It is desired to have a machine with simple user controls as well as the ability to automatically log and plot the spring rate in real time on a digital display. Current products fall short of these objectives, with most machines requiring the operator to manually record and/or plot data.

The goal of this project is to design a spring rate test machine that can test springs with spring rates up to 1200 lbf/in up to a maximum tested spring force of 2500 lbf. The design must include the ability to store the test results on a removable drive (e.g. USB memory stick). It must also display and plot the instantaneous spring rate in real time while the spring is compressed. The machine should be bench-mountable with a size and weight that would allow it to be moved by one person. This must be accomplished within the allotted budget of $1,000 (some parts are available from the sponsor at no expense).