

Project Title: [Imperial Electric Motor Life Testing System Design](#)

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Sponsor: [Imperial Electric Co.](#)

Imperial Electric, a division of Nidec Motor Corporation, specializes in custom designing and manufacturing high-performance electric motors and drive systems. Imperial Electric has over one hundred years of experience in electrodynamic devices by constantly producing quality products that perform to specifications. The electric DC motors must meet reliability specifications for brush life, to meet these specifications the motors must be put through motor brush life testing. Thus, Imperial Electric is seeking assistance in developing a more user friendly and reliable device for conducting DC motor brush life testing. The current generator motor method is unreliable as the generator motor typically tends to burnout corrupting data and can involve complicated maintenance during testing. The requested design for a new life testing apparatus must be able to perform consistently with an accuracy of 99% for each test, handle a max loading of 5HP at 2000 RPM, and a max speed of 5000 rpm. Other design aspects that need to be considered is that the design needs to be simple to maintain, a passive device, work within their testing lab, and connect to the test motor through love joy couplings.