Problem Statement Form

for VIP and Design Class

Date: 27th September 2017

Team Name	TEAM DOPES	
Team Project Title	Diagnosis of Power Electronic Systems	
Team Advisor	Dr Charles Kim	
Team Assistant	Ayotunde Odejayi	
Team Members	Senior Design Class Students	Shamar Christian
	Other Students	Bibek Ramdan Ayotunde Odejayi Ikem Uba
Team Project's Long Term Goal	Development of an embedded monitoring system for power electronic systems to detect failure modes and also create correction conditions to prolong power electronic life without the use of excitation spectroscopy methods.	
Team Project's 2017-2018 Academic Year Goal	The design and implementation of a modified buck converter with embedded sensing devices for experimentation.	
Problem Statement	Dissatisfied Situations	Itemize: - Power Electronics tend to fail as time progresses. - No accurate way to diagnose their health in real time. - No mathematical modeling capability for power electronics to predict failure.
	Needs from the Situations	Itemize: - Mathematical formula that accurately defines failure - Sensing electronic failure without bulky setup; optimally an embedded system to increase PCB design density. - Creating a "correction circuit" to improve the power electronic efficiency and reliability.
	1-Sentence Problem/Need Statement	A complete sentence: Developing a real-time ebedded sensor network coupled with a recovery system, in order to diagnose and "heal" power electronics in their operation as they cope with electronic stress.