

Microcontroller Based Memcapacitor Emulator

Gomez-Donato, Adrian (School: Liberty High School)

The overarching goal of this work is to create a memcapacitor emulator platform that is accessible over the internet for anybody who would like to run their own tests on the emulator circuit. A physical circuit that emulates a memcapacitors electrical behavior will be constructed and connected to a microcontroller; the microcontroller will be used to power the circuit as well as read the resulting voltage and current and then plot them on a webserver. The voltage and current values will be plotted over time and the current integrated to find the charge. The idea is to allow the user to control the input voltage frequency as well as amplitude within a reasonable range which would require signal amplification. Hence the user will be given the ability to customize the test they will run and get results as though they were testing on the physical memcapacitor emulator themselves and not through any web interface.

Awards Won:

