Design, Analysis, and Implementation of a Portable, Low-Cost, and Bluetooth ECG Device

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An electrocardiogram (ECG) is a medical device that doctors use to determine great deals of information about a patient's heart health. However, doctors are only able to use ECG devices in hospitals and places with stable power supplies. In the developing world, when there is a virus outbreak or a country facing civil war, doctors are unable to utilize ECG devices in the field and are forced to bring patients back to hospitals for treatment. The purpose of this experiment is to develop a device that would allow doctors in the field to treat and assess patients regarding their heart health. Using standard capacitors, resistors, amplifiers, a micro controller, and Bluetooth module, I was able to develop a low-cost ECG circuit that amplifies and filters an ECG signal providing a medical grade ECG signal. I hope to further develop this technology and provide doctors in the field with a low-cost, portable, and clinical grade ECG device.

Awards Won: