



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Bradley P. Gribas	Project Number J0206
Project Title Can a Bicycle Generate Electricity?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals I wanted to see if I pedaled a bicycle powered generator if it would produce enough electricity to power small electronics and appliances. If successful, this would prove to be an alternative source of energy.</p> <p>Methods/Materials A bicycle was put on a stand, and a motor (generator) was rigged to the bicycle (this will charge a 12 volt battery). An inverter was added to convert the battery's DC current to AC current. This was needed to power items that would normally plug into a wall outlet. A belt was attached to the pulley on the motor shaft and connected to the battery with wires. A diode was inserted between the motor and battery to insure that the current flows in only one direction. The various items were plugged into the inverter to see if they would operate.</p> <p>Results While pedaling at a constant speed of 5 to 6 mph, the charge of the battery was maintained and most electronics and appliances being tested ran for 5 minutes. The voltmeter registered between 11 to 13 volts on the radio, laptop computer, blender and light, but would not register at all on the hair dryer and popcorn maker. I think the reason the hair dryer and popcorn maker wouldn't work is they kept blowing a breaker in the AC to DC converter. This would shut them off because they tried to pull more electricity than I could produce.</p> <p>Conclusions/Discussion The hypothesis that a bicycle can generate enough electricity to power small electronics and appliances proved to be true for some items, but not all. Enough electricity was not produced to power the hair dryer and popcorn maker. This alternative energy source required human physical exertion, and therefore is not practical. However, for short term use, as in an emergency loss of power, it is a readily available source of clean energy. This project helped me develop engineering skills and made me want to further investigate the bicycle powered generator to make it more powerful and able to operate other appliances.</p>	
Summary Statement Can a pedal powered bicycle generate enough electricity to power small electronics and appliances?	
Help Received	