



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Jonathan Lopez-Hernandez	Project Number J1014
Project Title Magnets That Charge	
Objectives/Goals The goal for this project is to allow people that have a phone to use a kinetic energy as a charging source.	
Abstract Methods/Materials This device works by using Faraday's Principle, when it gets shaken the magnets go back and forth causing the electrons to excite in the copper wire. That energy is taken through wires to a convergence board that has a battery and then gets transferred to a USB port. Once done, the USB wire connects to the phone to charge. The investigation was conducted in three engineering cycles. First, it was broken apart and studied, and next it was connect to USB port. Lastly, it was put into a water bottle.	
Results The success was that the charger worked to register the phone as charging. The bottles were also connected for the flashlight case. The growth points for the project are to keep the bottle from leaking and to have the battery percentage go up while charging.	
Conclusions/Discussion In the future to perfect this idea by reducing the size so it fits in my pocket and increase the charging capability. This can be done by make it tall enough to relate the same amount of energy of my present project. This means that it will be smaller and work better.	
Summary Statement My project works by using Faraday's Principle; a magnet gets shaken to send electricity through a copper wire up to a convergence board that later sends the energy to a USB Port.	
Help Received I made the design based on a shaker flashlight that I saw on Amazon. I looked up information on how the flashlight worked and got information from a teacher at Tenaya. I recieved help soldering from two men, Brian Reid and William Shambaugh.	