



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

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Project Title Charge on the Go: Kinetic Energy Generator for Cell Phones	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Cell phones are becoming a crucial part of peoples lives in Africa, however in some places people may have to walk for hours to get access to power and pay large amounts just to charge their phone. I built a device that harnesses the kinetic energy from walking as a green way to charge cell phones, and most importantly enable cell phone owners to charge them any time off the grid.</p> <p>Methods/Materials My goal was to make my device small, light, mobile, eco- friendly, and cheap. First I began designing prototypes. Since movement from walking is mostly up, down, forward, backward, I was not able to use the most common generator design; which converts electricity by rotation. Many prototypes did not work, so I used a method of trying something new and collecting data, figuring out what was wrong and how I could improve my idea. I used simple materials, basic tools from hardware stores. To build my invention I needed thin copper wire, a thin plastic or non-magnetic metal tube, magnets, a spring and electronic components to produce direct current.</p> <p>Results My invention was successful. I designed and built a kinetic energy generator, which charges a cell phone. I measured the frequency and voltage, and though it was difficult, I achieved my goal. I had a lot of fun building this invention. Being eco-friendly in these ways is a passion of mine I hope to pursue. I would like to make some improvements, but for now the invention works great. I knew there must be a way to convert walking to electricity, and my invention took form. Though I had many failures along the way, I ultimately succeeded and achieved my goal.</p> <p>Conclusions/Discussion In the future to improve my invention I would use stronger magnets to improve the performance. A gap between the magnets and the coil can lessen the electricity generated, so to make it more efficient I would find a smaller, thinner housing. If possible I would make the invention waterproof. My ultimate goal would be to make the invention smaller and lighter, so it could perhaps even fit in your pocket. It would be interesting to test how much voltage is generated while riding a bicycle as well. I would also want to make the whole invention more secure with permanent caps and ends. Lastly, to make it more user-friendly I would like to add a belt clip to the device so it is easier to carry around. It has been so much fun building and designing my invention.</p>	
Summary Statement I designed and built a kinetic energy generator which converts movement from walking into electricity.	
Help Received My father drove me to stores to buy parts, and let me borrow his tools.	