1. Personnel
   1. Material Scientist
   2. Chemist (maybe a second material scientist)
   3. Electrical Engineer
      1. Tasks would include designing and constructing circuitry for measurement and energy storage
2. Abstract Checklist
   1. Pertains to an issue of relevance within an engineering context.
      1. The widespread use of portable electronics has made energy generation and storage an important issue for scientists and engineers. The possibility to harness energy from ambient sources of energy, such as vibration, friction, and sound, has been realized as triboelectric generators. However, the comparison of the combinations of materials in these generators have not been addressed in detail. (1)
   2. Experimental methods.
      1. Given differing material combinations, sets of triboelectric generators will be fabricated. Each of these will be excited with a controlled source of mechanical energy, and measurements on the electrical output generated will be recorded. Once data has been collected, the combinations will be ranked based on performance in different parameters. In addition, any trends between electrical performance and material/chemical properties will be investigated. (5)
      2. Given the numerous amount of possible material combinations to study, a few (two to four) materials with exceptional results from previous research will be selected as a base set. This base set will then be paired with various other materials to produce a full set of pair combinations. A triboelectric generator will then be fabricated using each pair of material
   3. Its purpose is to produce new knowledge.
      1. Studying the output parameters of triboelectric generators with different material components will provide new insight on effective material selection for further research and applications. (3)
   4. The new knowledge cannot be gained by any other method.
      1. New knowledge researched can eliminate the lack of clearly established relationships that relates different materials used in triboelectric generators. (2)
   5. Some constituency that would think the proposed research has merit and is needed.
      1. Advances in this field can provide solutions to telecommunications and low power electronics companies looking for promising technology for charging and powering the widespread use of their portable devices. (6)
   6. Requires the design of experiments concepts
      1. The main focus of this research is to investigate how the material composition affects the triboelectric generator’s process of producing electric power. All other factors, such as temperature, device construction, device layout, and measurement procedure will be held constant. (4)
   7. Must provide end to end coverage
   8. Nature of result
      1. Peak and average performance levels for a variety of material combinations. Given already reliable materials, establish trends based on chemical make up.
   9. Financial and time budget
   10. Page length
   11. Formatting
   12. Be able to explain all terms used