

Vibrational Energy Harvesting For Powering Field Instruments

Team 11 Members

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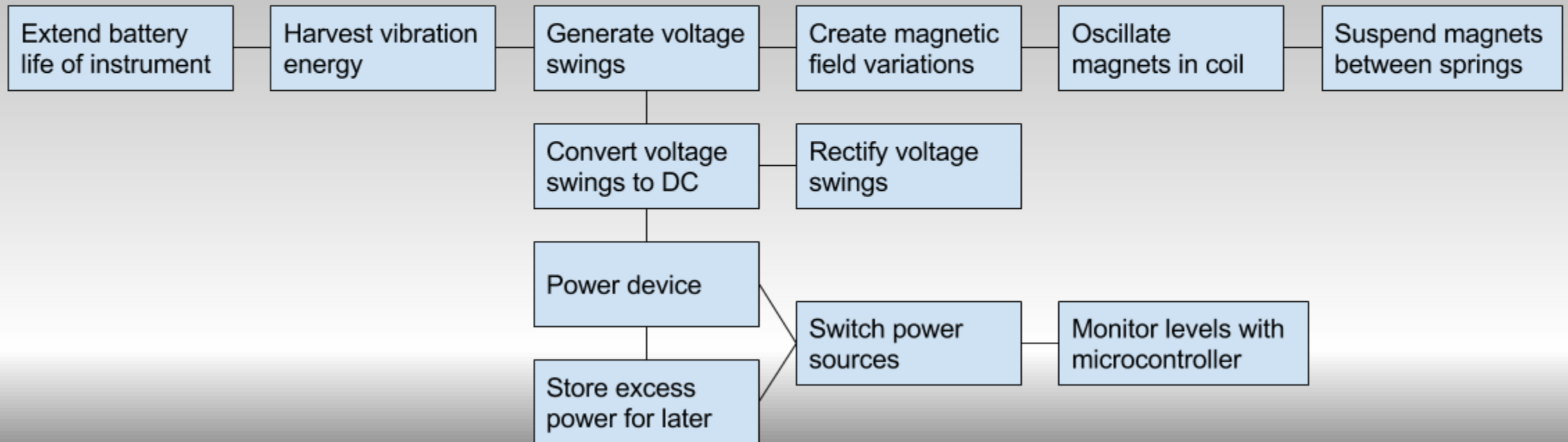
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Problem Statement

- Harvest vibration energy present in moving vehicles
- Use it to extend battery life of field instruments



Design Specifications

- Compatible with VTP-3Dv2
- Rated 3.6V output
- Supply 5mA
- Operate at Low Frequencies (3-4 Hz)
- Rechargeable device
- Attachable / Detachable

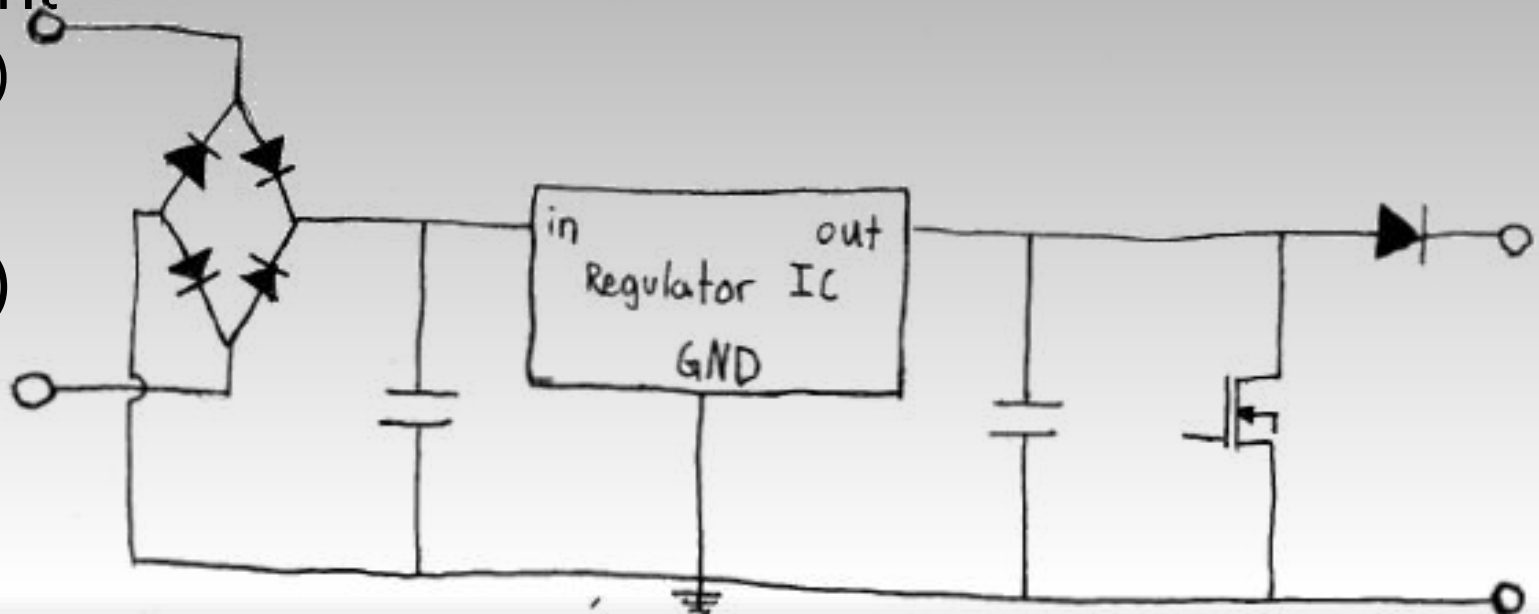
Electromagnetic Apparatus Structure



- Coiled magnet wire around the outside of cylindrical structure
- Two compressional springs suspending a magnet
- Neodymium magnet is used and attached in between the two compressional springs
- The wire leads will be attached to a powertrain circuit, when apparatus is in use

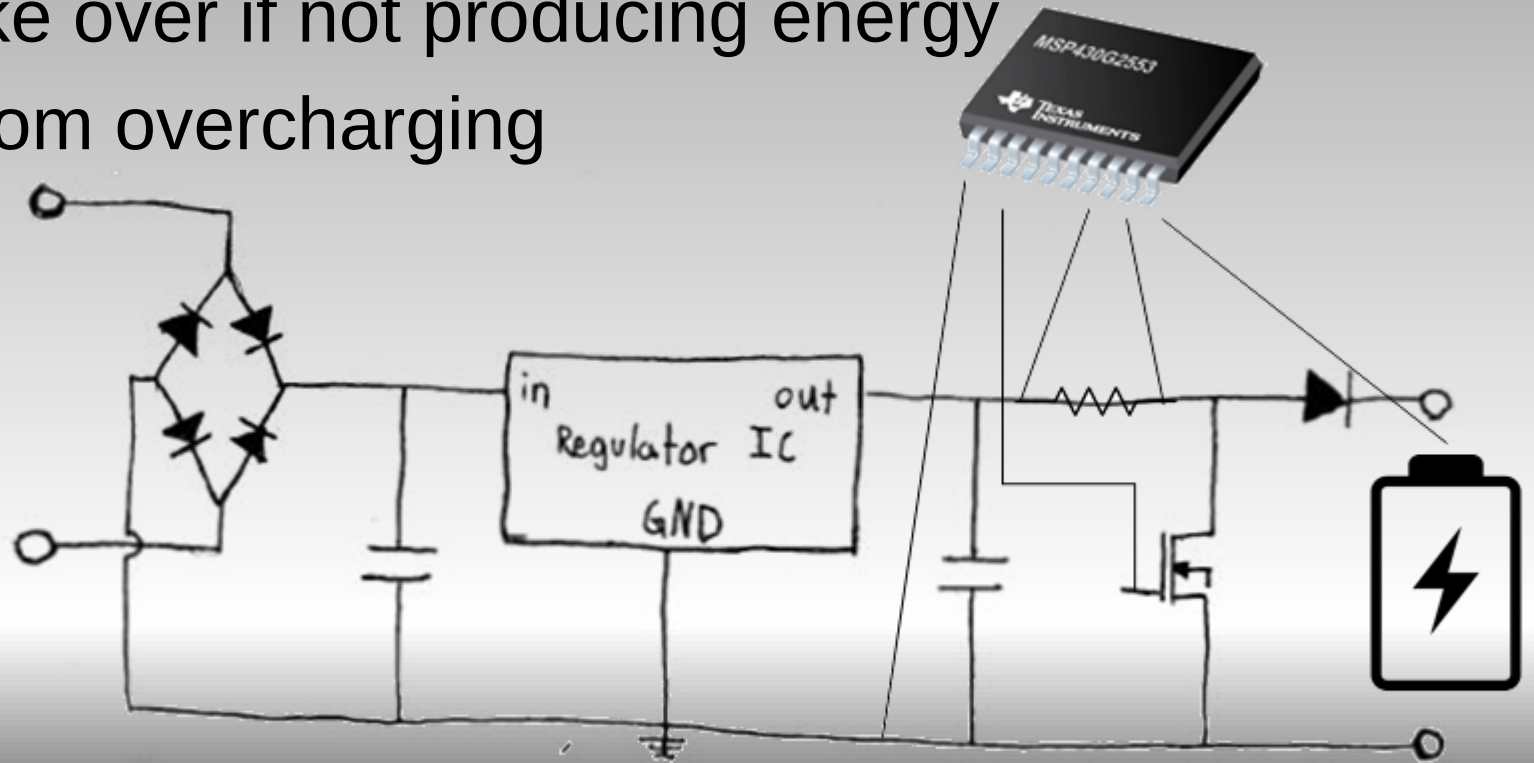
AC to DC Regulating Circuit

- From apparatus to supply
- Low power requirement
 - (3.6V 5mA 18mW)
- Rectify AC to DC
- Regulator (adjustable)

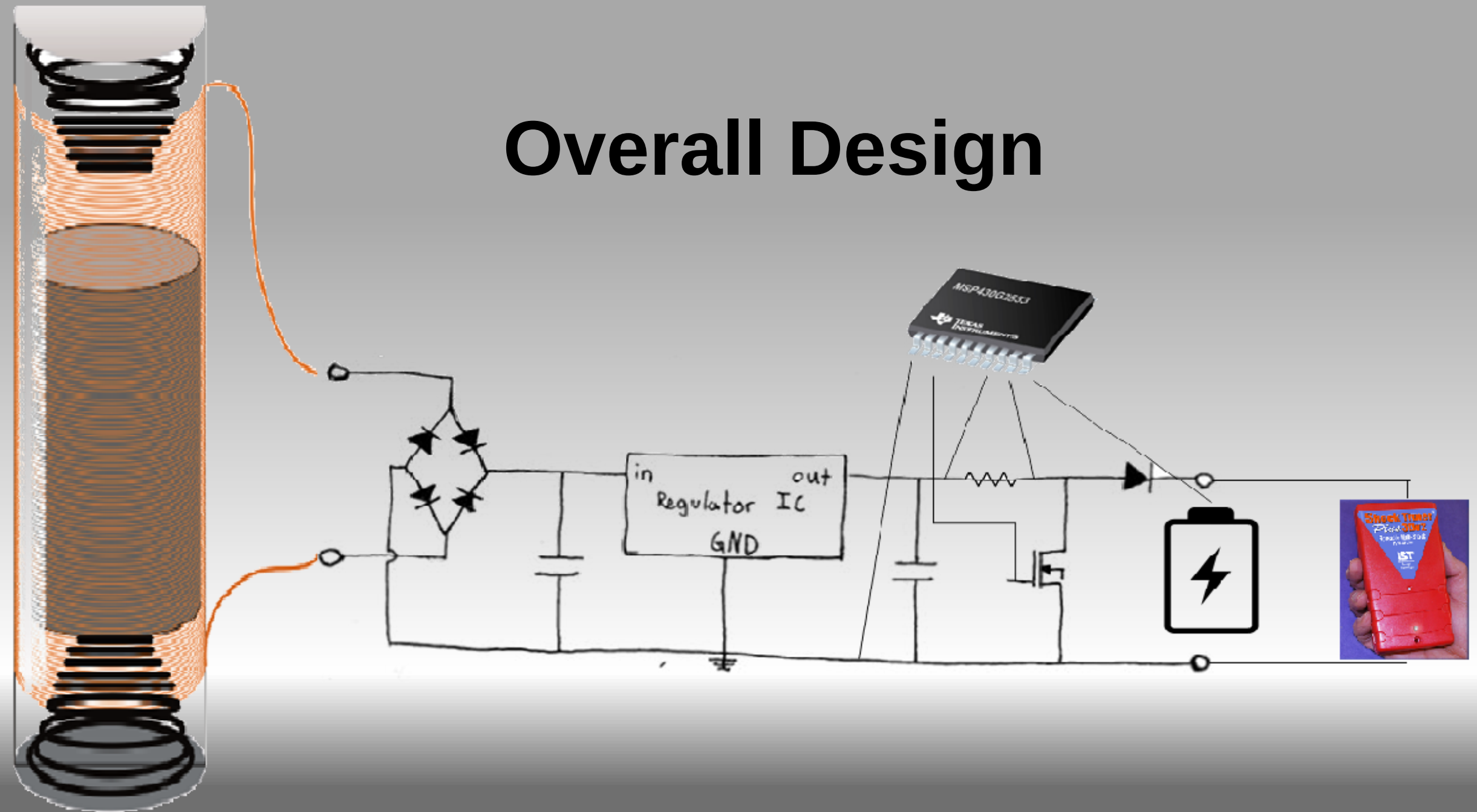


Microcontroller Monitoring Circuit

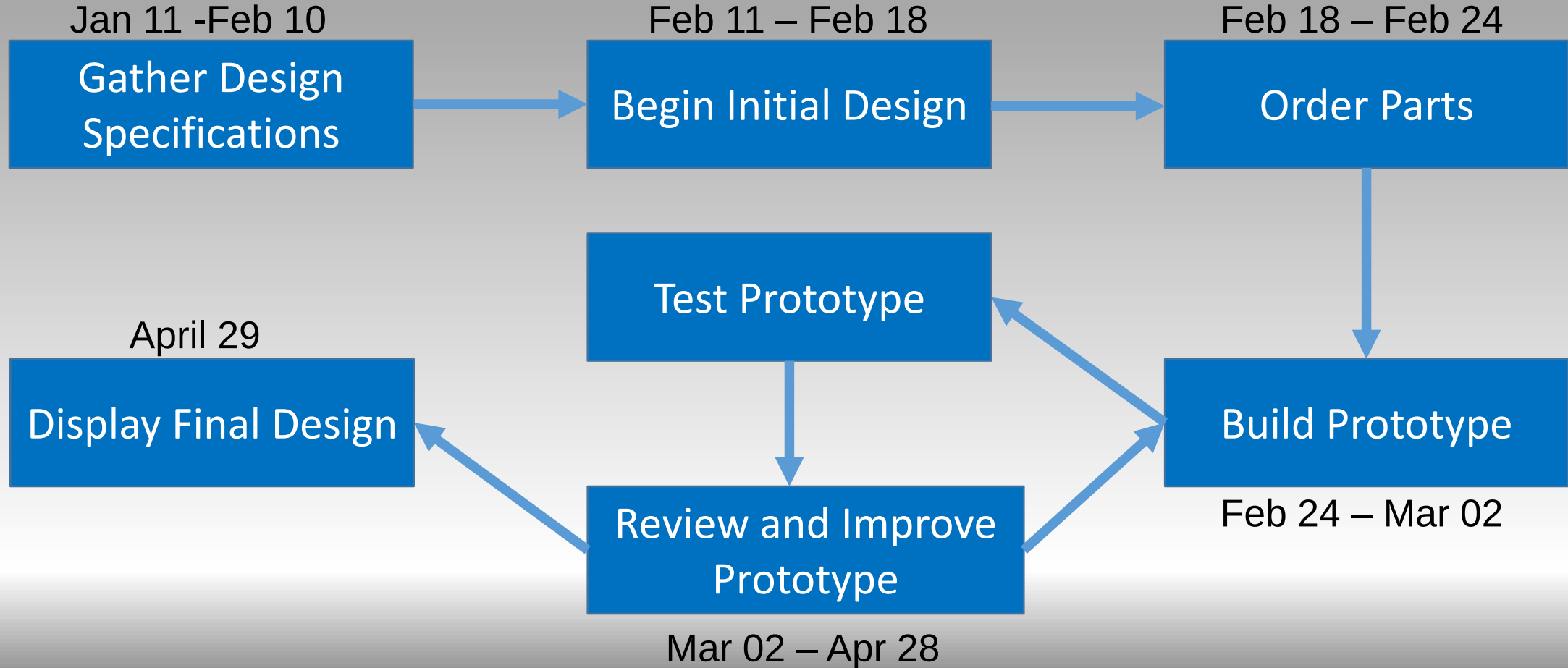
- Monitor current generated by vibration harvester
- Allow battery to take over if not producing energy
- Protect batteries from overcharging



Overall Design



Project Timeline



Questions?