Electric Shock Prevention

David Hernandez
ECE 398 PSC
Problem

- Electrical shock in the workplace
Problem Cont.

- Worker Fatalities in 2014
  - Falls (348 out of 874)
  - Electrocutions (74 out of 874)
  - Struck by Object (73 out of 874)
  - Caught in between Object (12 out of 874)
Cause

- Electricians in facilities or construction sites have to shut down power from main panel to the area to be worked on.
- Someone can turn on the power from main not knowing that worker is in that area still working.
Currently

- Physical key and lock
- Breaker can be locked to keep the power off
- Can be unlocked by anyone with key
- Multiple employees carry the same key
Solution

- Map of facility with zones
  - Each zone corresponds to a breaker at main
- Each worker carries GPS tag
- Monitor at main to display each zone
  - Alert if worker is in zone
Market

- Industrial
  - Construction sites
- Commercial buildings
Sources

- https://static.grainger.com/rp/s/is/image/Grainger/1TDB2_AS01?$zmmain$
- https://www.osha.gov/oshstats/commonstats.html