



# Powering The Community

CyberWolves

Team Members: Keagan Bowman, Eoghan Riley, Owen Bressan Rangel, Race Keene

Mentor: Summer Hane

# Background Information

We need a smart grid to reduce blackouts/brownouts and to improve the efficiency of the power grid. Smart grids have computers that monitor it in case of a blackout/brownout rapidly decreasing the time for it to be repaired. Smart grids are also able to adapt to the needs and production of electricity so that we are not over or under producing electricity. This makes it easier to integrate solar panels and other electricity generators owned by consumers to put power back into the grid.



# Design Process

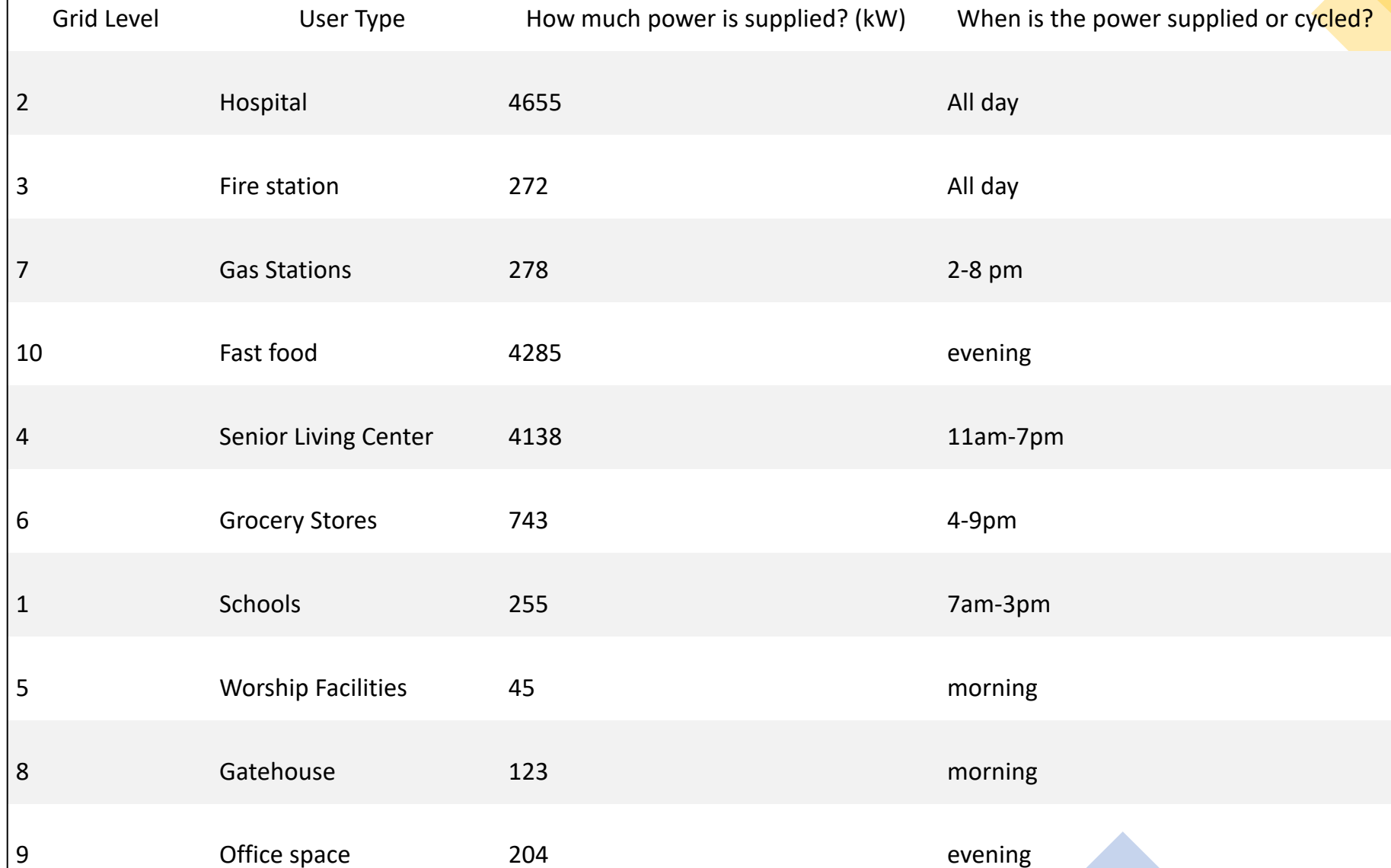
---

To create our design, we researched the services available in our area which would play a major role in an emergency (hospital), be largely affected in an emergency (senior living center) or is a major part of daily life (offices). Afterwards we researched the power usage pattern of these services to know how much power they would need and when they tended to have large usage spikes. Finally, we took our research and devised an order for re-establishing these services based upon our research done prior with some criteria we established. That criteria is: what services do they depend on to be functional and how much impact they can provide in speeding up the restoration process.

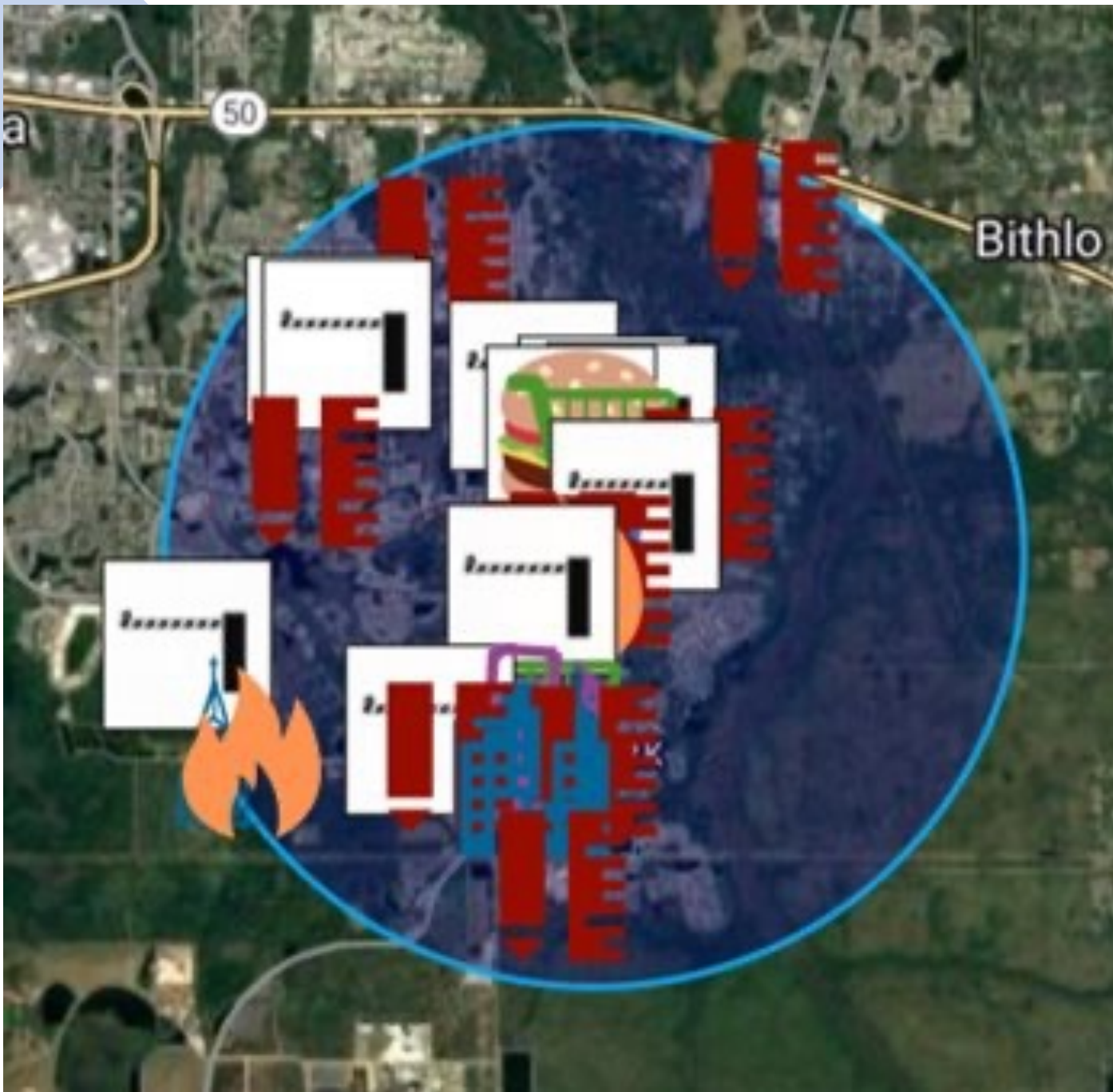


# The Design

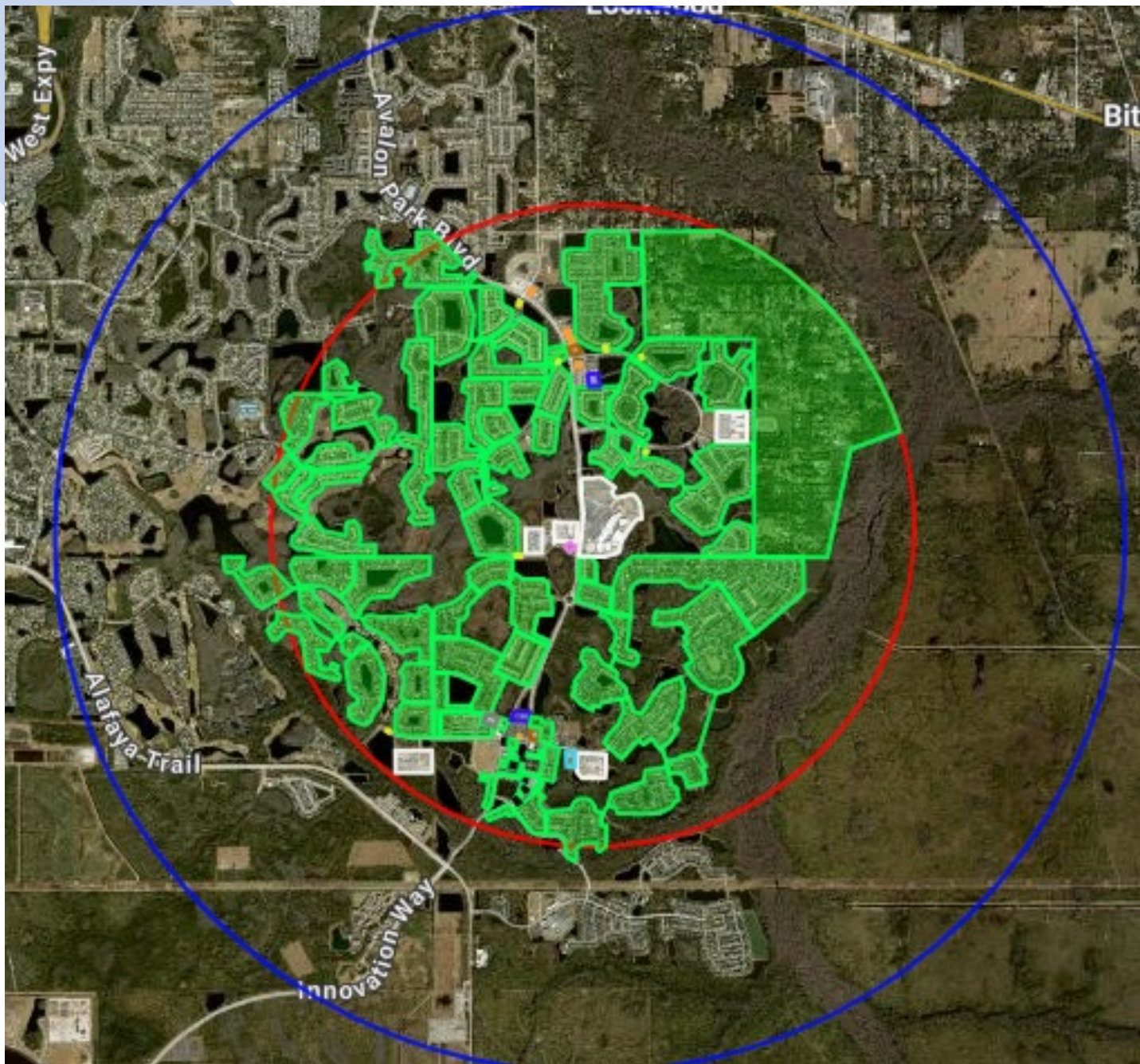
- **User Types:** (In order of priority)
  - Schools
  - Hospitals
  - Fire Stations
  - Senior Living Centers
  - Worship Centers
  - Grocery Stores
  - Gas Stations
  - Gatehouses
  - Offices
  - Fast food



Grid Level	User Type	How much power is supplied? (kW)	When is the power supplied or cycled?
2	Hospital	4655	All day
3	Fire station	272	All day
7	Gas Stations	278	2-8 pm
10	Fast food	4285	evening
4	Senior Living Center	4138	11am-7pm
6	Grocery Stores	743	4-9pm
1	Schools	255	7am-3pm
5	Worship Facilities	45	morning
8	Gatehouse	123	morning
9	Office space	204	evening



User	Icon
Residential	N/A
Schools	Ruler and Pencil
Hospitals/ER	N/A
Grocery Stores	Shopping Cart
Senior Living Center	N/A
Gas Station	N/A
Fire Station	Fire
Gatehouses	Gate
Churches	Cathedral
Office Spaces	Office Building
Fast Food	Burger



User	Color
Residential	Green, (#00FF12, #00FF52)
Schools	White, (#FFFFFF, #FFFFFF)
Hospitals/ER	Red, (#FF0000, #FF0000)
Grocery Stores	Blue, (#2812FF, #3105FF)
Senior Living Center	Grey, (#828280, #7D7D7D)
Gas Station	Brown, (#C98134, #AD5A00)
Fire Station	Pink, (#C971B2, #EE74F2)
Gatehouses	Yellow, (#BAC942, #E6F224)
Churches	Teal, (#66C0C9, #3DD6F2)
Office Spaces	Black, (#000000, #000000)
Fast Food	Orange, (#FFB745, #FF9F33)



# References

---

Scribblemaps. “Home.” YouTube, 2023, <https://www.scribblemaps.com/maps/view/Assignment-5---Timber-Creek/X6E9Y5QaGZ%E2%80%8B>. Accessed 19 April 2023.

NanoHUB. “Home.” YouTube, 2023, <https://nanohub.org/tools/conversioncalc3%E2%80%8B>. Accessed 19 April 2023.

Energy Star. “Home.” YouTube, 2021, <https://portfoliomanager.energystar.gov/pdf/reference/US%20National%20Median%20Table.pdf%E2%80%8B>. Accessed 19 April 2023.





Thank you,  
Any questions?

---