Week 11 Meeting

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4/4/19
Team Leader: Chufu
Other Team Members: Katayi, Nur, Chufu, YJ
Advisor: Dr. Ajjarapu

Safety Moment: When you have flat ti

- If you have spare tire
  - Parking both away from traffic and on a flat surface.
  - Placing bracing material (such as pieces of wood or bricks) behind and in front of a tire
  - Using your vehicle's owner manual to locate your spare tire and jack.
  - Jacking the car up while keeping pressure on the ground .
  - Using the lug wrench, turn the lug nuts counterclockwise to loosen them.
  - Jacking up the car enough so that you are able to slip the tire off with ease.
  - Putting the spare tire on the wheel and place the lug nuts in the correct positions.
  - Tighten the lug nuts with your tire wrench.
  - After driving a few miles it's a good idea to stop and make sure that the lug nuts are still tight.
- If you don't have spare tire
  - Just call the toll truck please, they know what you are supposed to do.

Topics

- Solar Plant/ Voltage Drop
- Man-Hour Budget?
- Substation Grounding

Solar Plant/Voltage Drop

- Client info

Man Hour Budget

- The team had a total of 625.5 hours last semester
- Would the cost be $62,550?

Substation Grounding

1. For Lc, the total length of conductors in the horizontal, we are assuming that the conductors are inside the rods so the total length of conductors would be the same as the total length of the rods in the horizontal.

1. For Lr, the length of each ground rod, we are using 20 ft because that's the length of a rod in a 20' by 20 grid.

1. D is 20', which is 6.096 m because that's the distance between two parallel conductors

1. A is the area of the 162' by 152' grid

1. d is the diameter of the conductor size calculated in part 2, we had to convert kcmil to m^2 and find the diameter using the A=pir^2

1. Lx and Ly are the 162' by 152' grid length and width

$Lc = 1458\ ft = 444.3984\ m$
$Lp = 628\ ft = 191.414\ m$
$D = 20\ ft = 6.096\ m$
$h = 0.15\ m$
$A = 2287.6\ sq.\ m$
$d = 0.003175\ m$ see references page

Substation Grounding - Grid Schematic

Open it on AutoCAD

Questions

1. For D, spacing between two parallel conductors, what value should we use? Currently, we are using 20 ft because that's the spacing between two parallel rods in a 20' x 20' grid.

1. The maximum Es we calculated is smaller than the tolerable Estep value that we calculated before, which is good, but the maximum Em we calculated is much larger than the tolerable Etouch value. Are we using the correct values for the parameters in the Em equation?