

The background of the slide is a grayscale image of a circuit board. It features a complex network of black lines representing traces, with several large black circular pads or vias. The overall aesthetic is technical and modern.

Charging Bike Station with Electrical Emphasis (Budget Analysis)

Alharbi, Devine, Dhillon

11/12/2013

Outline

- Generator Costs
- Chips or Circuit Costs
- Display Costs
- Coil Costs
- Magnet Costs
- Cables Costs
- Conclusion

Generator Cost

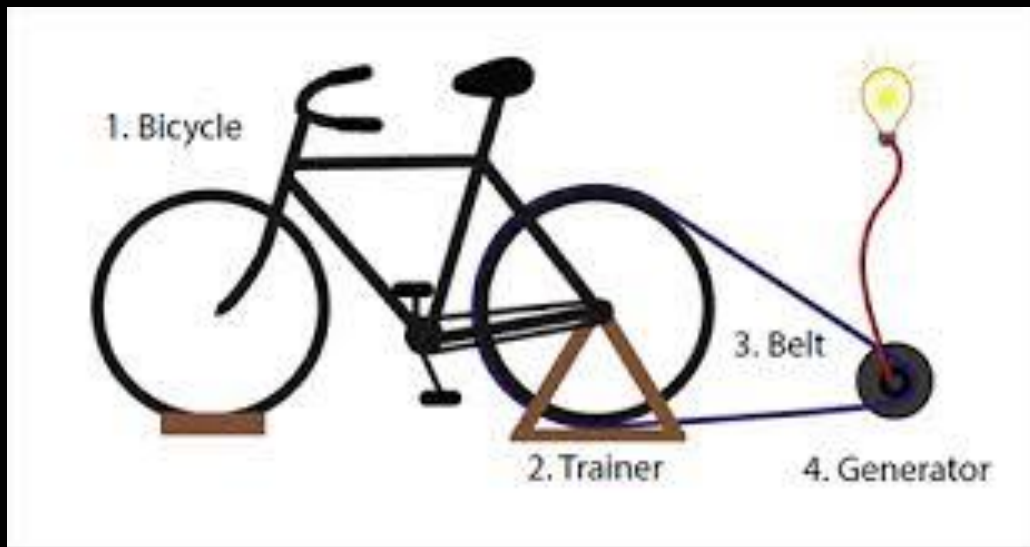
- Custom generator compared to Purchased generator:
 - The custom generator might not be as easy to make as we thought, however the cost could range from \$35 to \$100.
 - A purchased Generator can range from \$135 to \$1000, however this might be the way to go.

Purchased Generator



From Testically

Purchased Generator

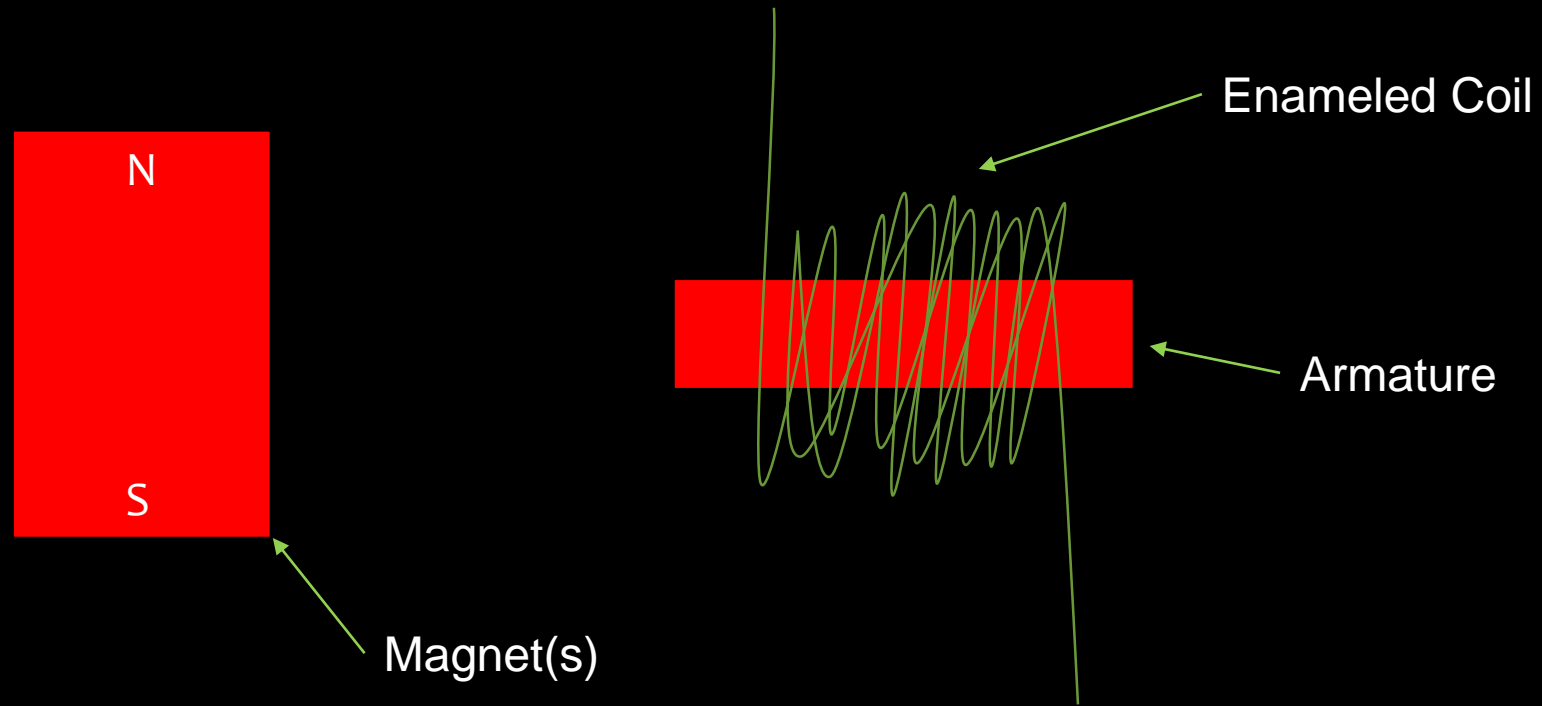


<http://nau.edu/CEFNS/Centers-Institutes/Sustainable-Energy-Solutions/Education/Bicycle-Generator-Project/>

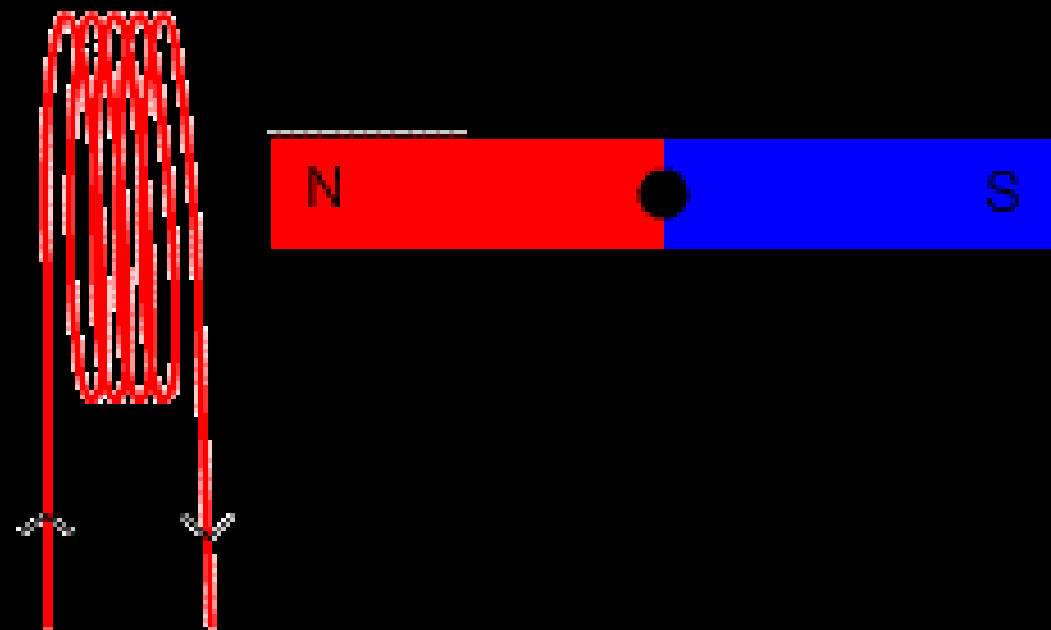
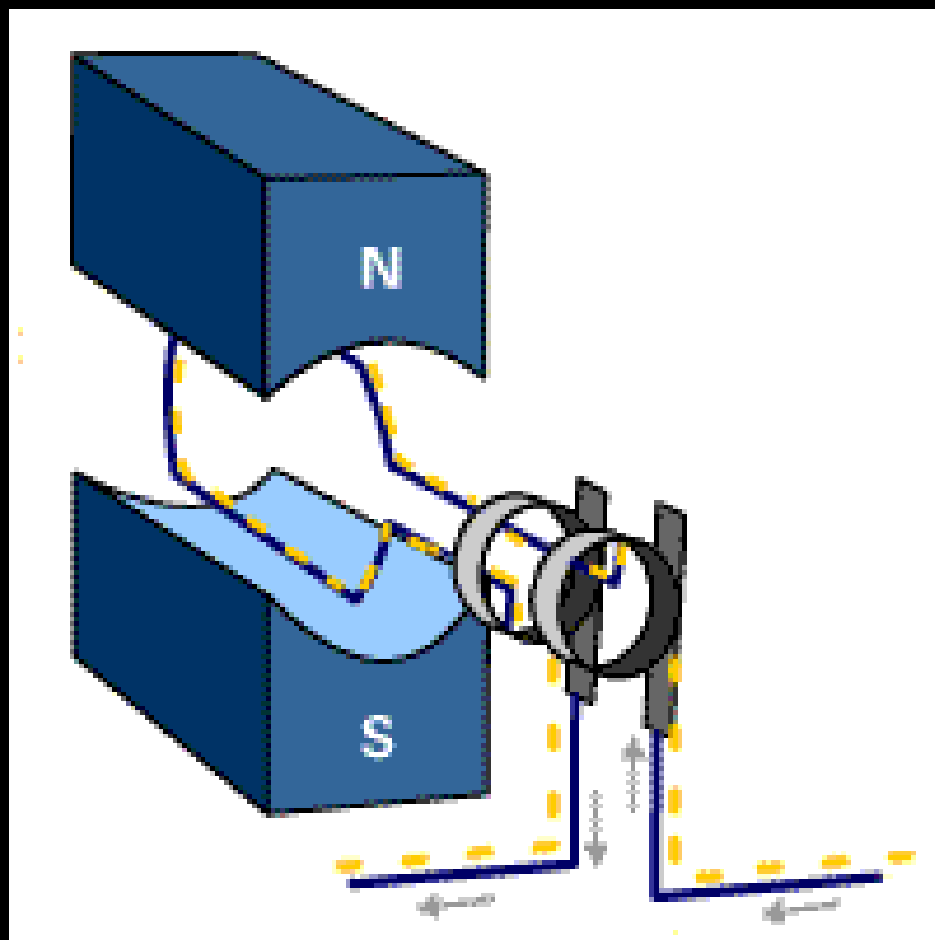


tour.airstreamlife.com

Custom Generator

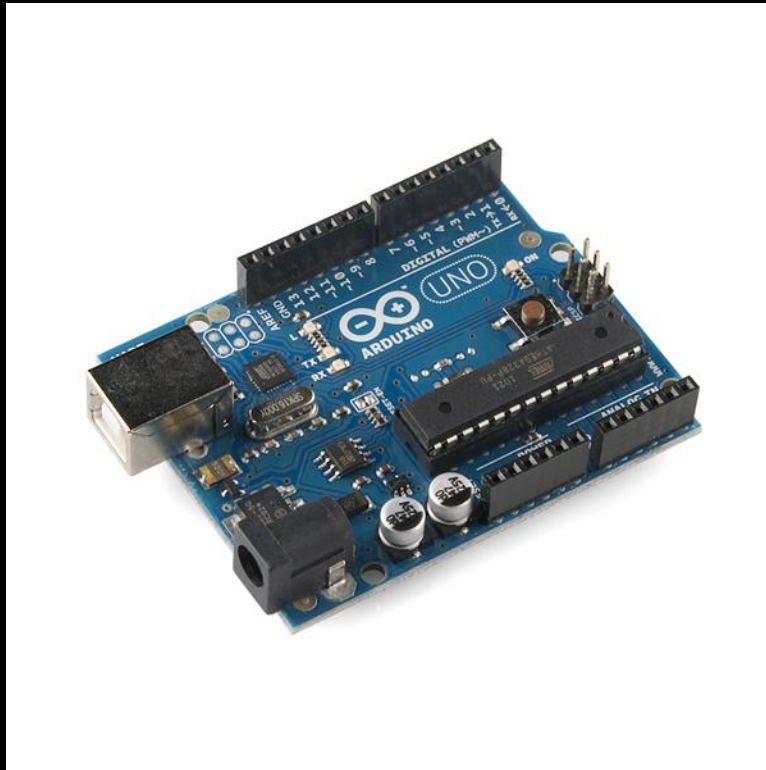


Custom Generator



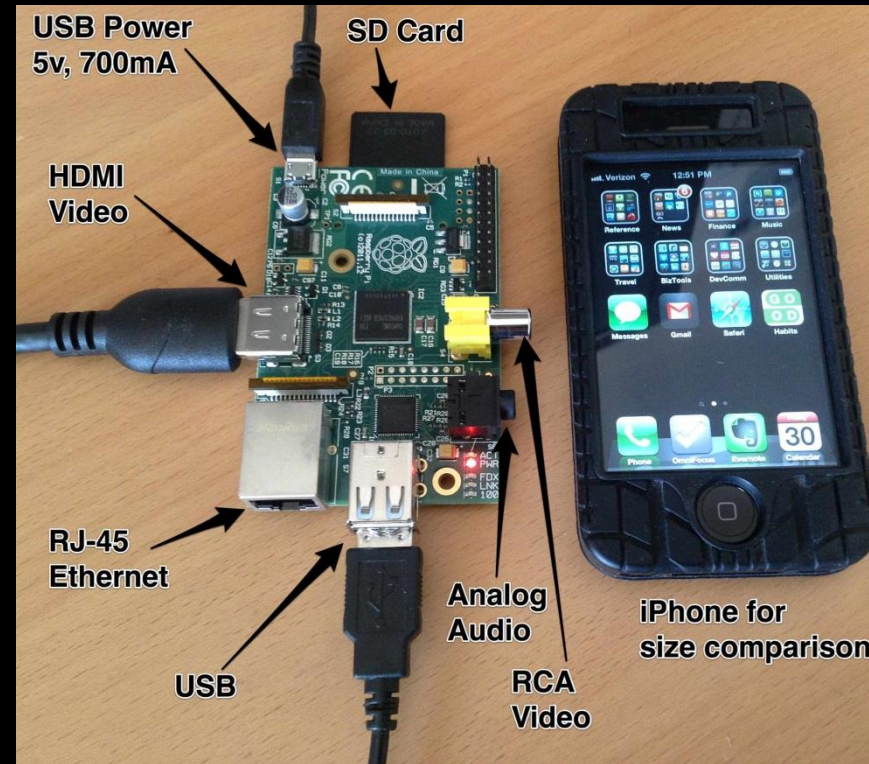
Chipset

- Arduino or Raspberry Pie

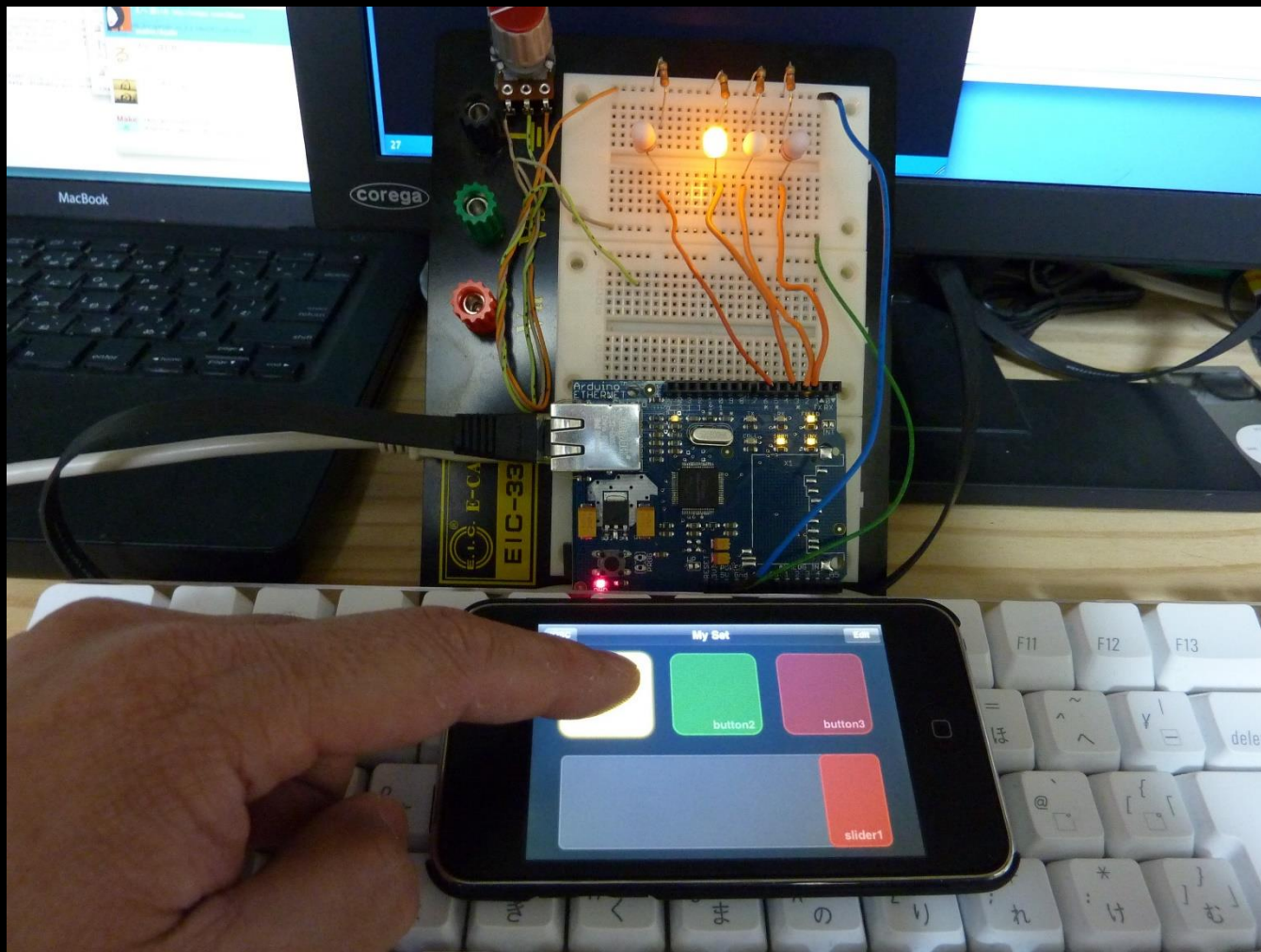


www.sparkfun.com

Dhillon



rayhightower.com



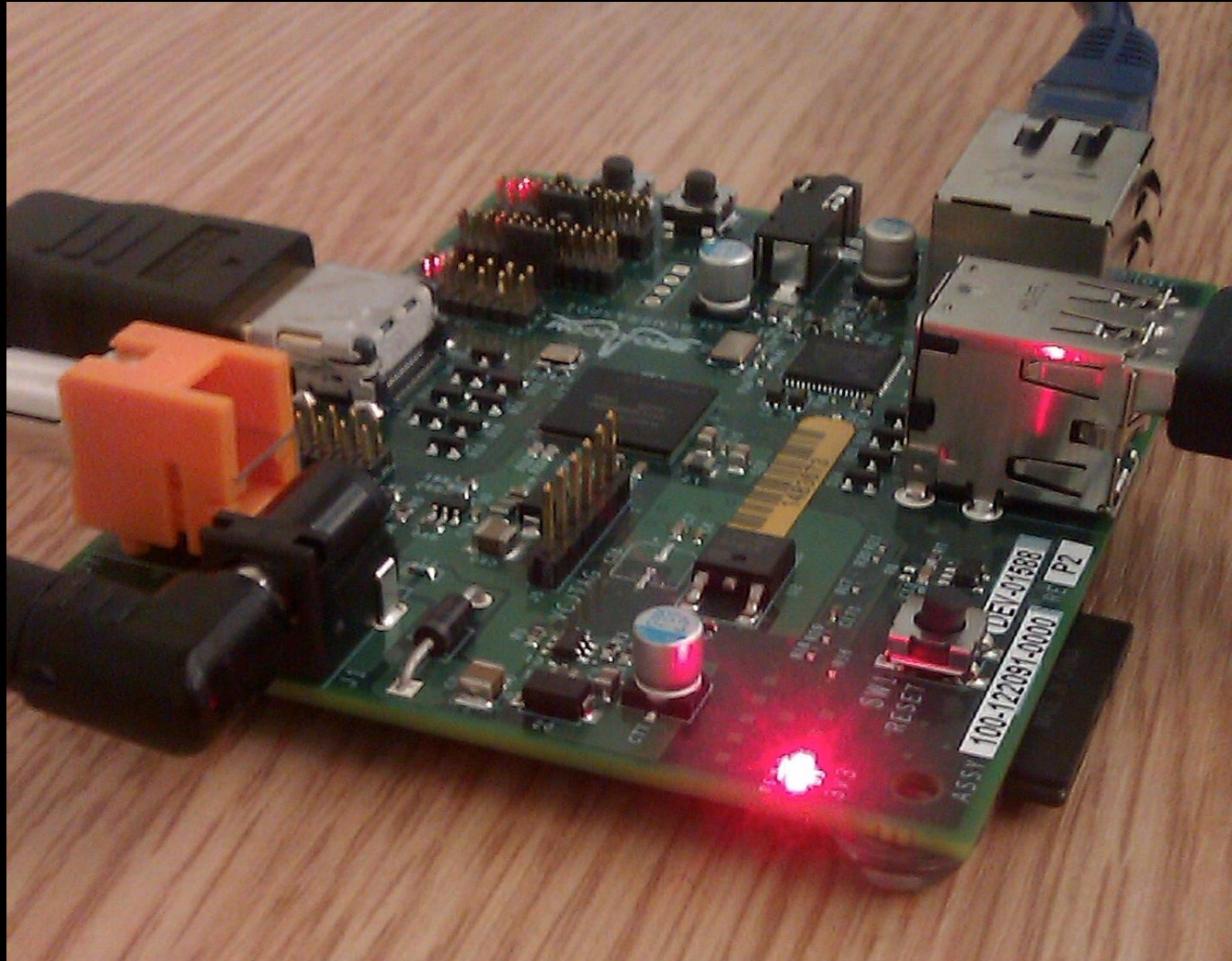
Arduino

- Good display properties and very good functionality

www.flickr.com

Cost of Arduino

- Arduino boards are in the range of \$20-\$35
- Since the team already has an arduino board, this may not affect our budget



Raspberry Pi

- Extremely good display properties - HD

<http://en.wikipedia.org>

Cost of Raspberry Pie

- Raspberry Pie's are \$35
- Since the team already has a raspberry pie, this may not affect our budget

Display

- TFT LCD Display Monitor
- HP L1740 LCD Monitor
- AOC E1659FWU LCD Monitor

TFT LCD Display Monitor

- Stands for Thin Film Transistor
- High resolution (minimum is 1024 x 768)
- Advanced Super View (ASV)
- Good Response Time



<http://www.tftcentral.co.uk>

HP L1740 LCD Monitor

- Response rate is 5ms (rise + fall)
- Pixel Pitch of 0.264 mm
- Backlight Lamp Life of 40k hours
- High resolution (1280 x 1024)



<http://www.piloshop.ca>

AOC E1659FWU LCD Monitor

- Portable Monitor
- Brighter panel and brightness controllers
- 16.7 million color capability
- Response rate is 8ms
- High Resolution of (1366 x 768)



www.amazon.com

Display Budget

Model	Size (inch)	Price(\$)
TFT LCD Display Monitor	15	189.99
HP L1740 LCD Monitor	17	95.00
AOC E1659FWU LCD Monitor	16	127.02

Enameled Wire

- Magnet Wire
- Soft copper solid round conductor
- Insulation base coat
- Thermal class of 392 °F
- Excellent dielectric

Enameled Budget

Gauge	Weight (lb.)	Length (ft.)	Price (\$)
10	5	160	98.67
12	5	250	100.89
14	5	400	102.89
16	5	640	104.67
18	5	1000	107.19
20	5	1575	110.01
22	5	2500	114.08
24	5	3950	119.94
26	5	6285	123.22

Magnets

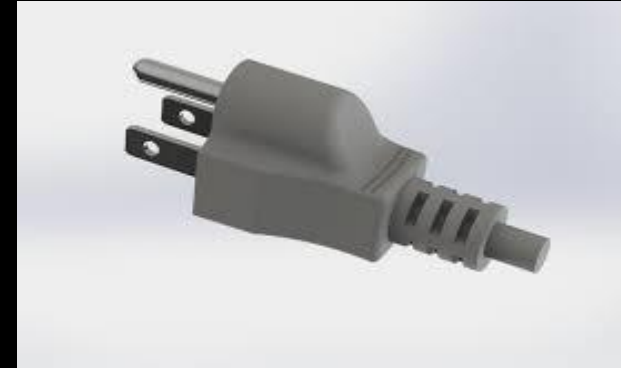
- Neodymium
- Rare Earth magnet family
- The most permanent magnets in the world
- Composed of Neodymium (Nd), Iron (Fe) and Boron (B)
- Price is \$15-\$50

Magnet Budget

Magnet	Dimensions	Price(\$)
Neodymium Magnet (N35)	6.5 mm x 1.5mm	35.99 (500x)
Neodymium Magnet (N35)	2 cm X 3 cm X 1.25 cm	15.99
Neodymium Magnet (N45)	1.3 cm x 2.5 cm x 1.3 cm	33.98
Neodymium Magnet (N50)	5 cm x 2.5 cm	38.89
Neodymium Magnet (N52)	2.5 cm x 2.5 cm	21.98

Cables

- iPhone Charger (New & Old)
- iPad charger
- Three Prong Cable
- Two Prong Cable
- USB



Grabcad.com



Money.cnn.com

Cables Budget

Cable	Price(\$)
iPhone Charger (New & Old)	15.00 (Total)
iPad charger	9.99
Three Prong Cable	6.90
Two Prong Cable	5.32
USB	4.05
Total	41.26

Capacitors

- 15 micro farad capacitor
- 400 v maximum round dry film capacitor
- It will cost \$18.07



www.amazon.com

Final Budget

Components	Price(\$)
Purchased Generator	500
Raspberry pie	35
Display	200
Capacitors	30
Cables	42
Total Budget	807

Conclusion

- Purchased Generator
 - Biggest Change
- Chip
 - Raspberry Pie, due to it's HD capabilities
- Display
 - HD with use of Raspberry Pie
- Cables
 - More devices will be accepted
- Budget = 807

References

- <http://labpeers.com>
- <http://www.powerwerx.com>
- www.ebay.com
- <http://www.magnet4sale.com>
- www.hp.com
- <http://www.tftcentral.co.uk>
- www.amazon.com

Questions?