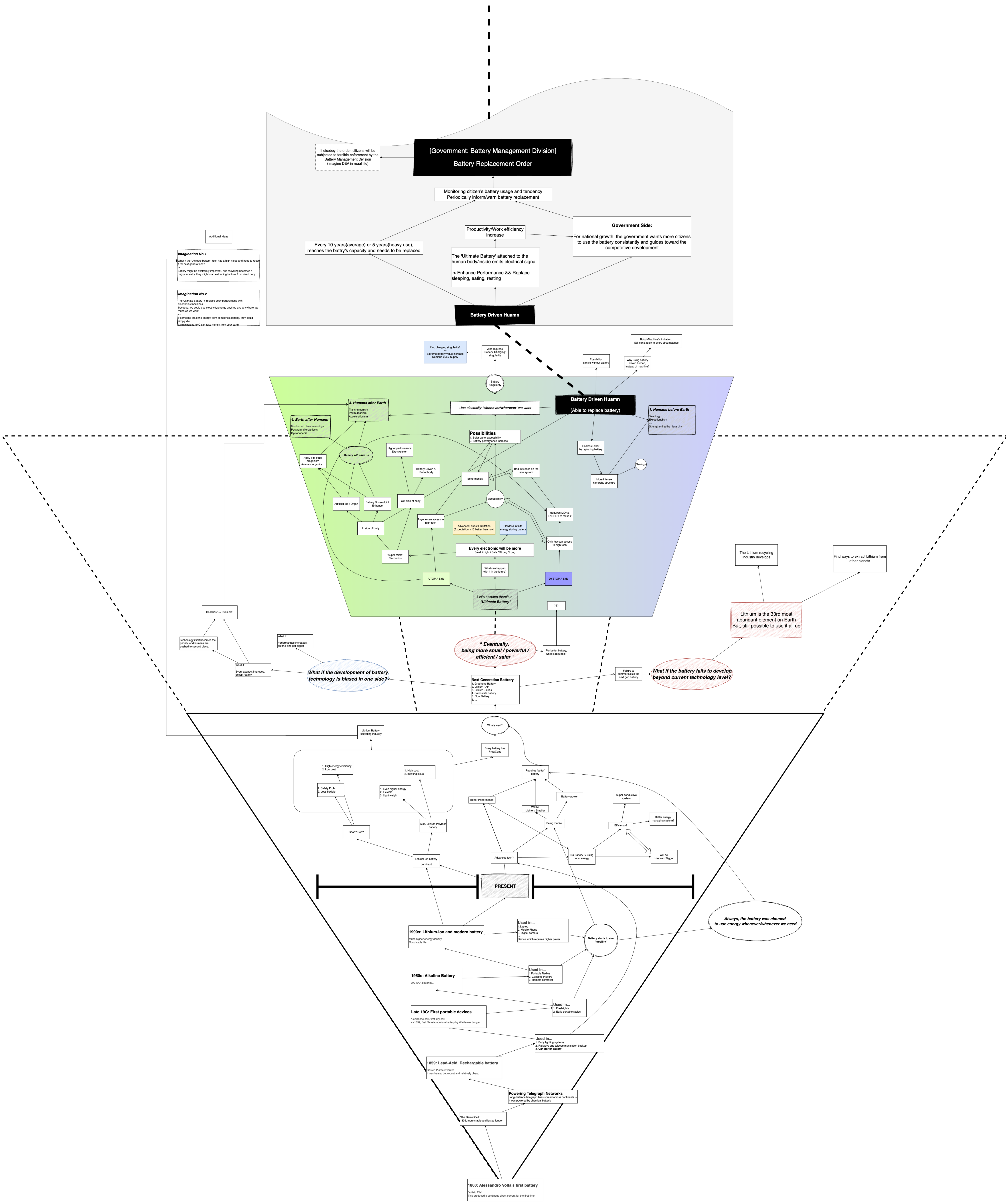

[Government: Battery Management Division]
Battery Replacement Order
If disobey the order, citizens will be subjected to forcible enforement by the Battery Management Division (Imagine DEA in reaal life)
Monitoring citizen's battery usage and tendency
Periodically inform/warn battery replacement
Productivity/Work efficiency increase
Government Side:
For national growth, the government wants more citizens to use the battery consistantly and guides toward the competetive development
Every 10 years(average) or 5 years(heavy use), reaches the battry's capacity and needs to be replaced
The 'Ultimate Battery' attached to the human body/inside emits electrical signal
-> Enhance Performance && Replace sleeping, eating, resting
Battery Driven Huamn
Additional Ideas
Imagination No.1
What it the 'Ultimate battery' itself had a high value and need to reuse it for next generations?
->
Battery might be exetremly important, and recycling becomes a majoy industry, they might start extracting battries from dead body
Imagination No.2
The Ultimate Battery -> replace body parts/organs with electronics/machines
Because, we could use electricity/energy anytime and anywhere, as much as we want
->
If someone steal the energy from someone's battery, they could simply die
~~(Like wireless NFC can take money from your card)~~
If no charging singularity?
->
Extreme battery value increase
Demand >>>> Supply
Also requires Battery 'Charging' singularity
Robot/Machine's limitation:
Still can't apply to every circumstance
Possibility:
No life without battery
Why using battery driven human, instead of machine?
Battery Singularity
Use electricity 'whenever/wherever' we want
Battery Driven Huamn
-
(Able to replace battery)
1. Humans before Earth
Teleology
Exceptionalism
->
Strengthening the hierarchy
3. Humans after Earth
Transhumanism
Posthumanism
Accelerationism
4. Earth after Humans
Nonhuman phenomenology
Postnatural organisms
Cyclonopedia
Possibilities
1. Solar panel accessbility
2. Battery performance increase
Endless Labor by replacing battery
More intense hierarchy structure
Geology
' Battery will save us '
Apply it to other oraganism
Animals, organics...
Higher performance Exo-skeleton
Battery Driven AI Robot body
Echo-friendly
Bad influence on the eco system
Artificial Bio / Organ
Battery Driven Joint Enhance
Out side of body
Accessibility
Requires MORE ENERGY to make it
In side of body
Anyone can access to high-tech
Advanced, but still limitation
(Expectation: x10 better than now)
Flawless infinite energy storing battery
Only few can access to high-tech
'Super-Micro' Electronics
Every electronic will be more
Small / Light / Safe / Strong / Long
What can happen with it in the future?
UTOPIA Side
DYSTOPIA Side
Let's assums there's a "Ultimate Battery"
???
The Lithium recycling industry develops
Find ways to extract Lithium from other planets
Lithium is the 33rd most abundant element on Earth
But, still possible to use it all up
Reaches '--- Punk era'
Technology itself becomes the priority, and humans are pushed to second place.
What if:
Performannce increases, but the size get bigger
" Eventually, being more small / powerful / efficient / safer "
For better battery, what is required?
What if:
Every asepect improves, except 'safety'
What if the development of battery technology is biased in one side?
Next Generation Battrery
1. Graphene Battery
2. Lithium - Air
3. Lithium - sulfur
4. Solid-state battery
5. Flow Battery
6. ...
Failure to commercialize the next gen battery
What if the battery fails to develop beyond current technology level?
What's next?
Lithium Battery Recycling Industry
Every battery has Pros/Cons
1. High energy efficiency
2. Low cost
1. High cost
2. Inflating issue
1. Safety Prob
2. Less flexible
1. Even higher energy
2. Flexible
3. Light weight
Requires 'better' battery
Better Performance
Battery power
Super-conductive system
Will be Lighter / Smaller
Being mobile
Efficiency?
Better energy managing system?
Good? Bad?
Also, Lithium Polymer battery
Lithium-ion battery dominant
Advanced tech?
No Battery -> using local energy
Will be Heavier / Bigger
PRESENT
1990s: Lithium-ion and modern battery
Much higher energy density
Good cycle life
Used in...
1.Laptop
2. Mobile Phone
3. Digital camera
->
Device which requires higher power
Battery starts to aim 'mobility'
Always, the battery was aimmed to use energy whenever/whenever we need
1950s: Alkaline Battery
AA, AAA batteries...
Used in...
1.Portable Radios
2. Cassette Players
3. Remote controller
Late 19C: First portable devices
'Leclanche cell', first 'dry cell'
-> 1899, first Nickel-cadmium battery by Waldemar Junger
Used in...
1. Flashlights
2. Early portable radios
Used in...
1. Early lighting systems
2. Railways and telecommunication backup
3. Car starter battery
1859: Lead-Acid, Rechargable battery
Gasten Plante invented
It was heavy, but robust and relatively cheap
Powering Telegraph Networks
Long-distance telegraph lines spread across continents -> it was powered by chemical batteris
'The Daniel Cell'
1836, more stable and lasted longer
1800: Alessandro Volta's first battery
'Voltaic Pile'
This produced a continous direct current for the first time

Battery Future (working title)

Emerging Future, Milestone 02

Name: Minkyu Kim
Date: Nov $20^{th,}$ 2025
Class: Core Studio Systems
Instructor: Thiago Hersan

For Milestone 02, I expanded and refined the map I made last week by using the design tools that were introduced during the class. I used the “Cone” to understand how battery technology has developed from the past to the present and to think about which direction it might take in the future. My first conclusion was that batteries will keep improving until it reaches an “ultimate battery” level. However, I started to feel that this kind of magical, perfect battery is not realistic. I thought it would be more useful to imagine a future where there is a limit to battery development, so that I could describe that future in a more concrete way. Because of this, I decided to extend my cone by applying Jim Dator’s Four Futures.

I used the “Discipline” in Jim Dator’s Four Future tool. In this scenario, battery technology never reaches the level of an “actual ultimate battery” and stays at something like the current lithium-based level(or a bit above). One reason for this could be the failure of full commercialization of new battery technologies. I push this idea further, and reached a “Decline/Collapse” future. Lithium is the 33^{rd} most abundant element on Earth, but it is still a limited resource that could eventually be used up. If that happens, industries related to lithium battery recycling might expand, and people might look for ways to extract lithium from other planets or celestial bodies.

Even after exploring these wider possibilities with Jim Dator’s Four Futures, I still felt that the central area of my original cone was the most convincing and likely. In particular, I realized that I needed to make the idea of the “Battery Driven Human” much more specific. If we really arrive at a future where humans live with batteries inside their bodies, what kind of world would we see? After imagining many different versions of this future, I finally chose one key aspect. “[Government: Battery Management Division] Battery Replacement Order.” Using the backcasting tool, I tried to list what kinds of events and phenomena would have to happen between my assumed near-future and that far-future. Through this process, I was able to think not only about the logical structure of that world, but also about the emotional experiences that people in that future might have.

The goal of my final work is to let participants briefly experience the dystopian future that I imagined. I want to create a small installation that shows the moment when a government office demands a battery replacement and when a person’s body battery is actually changed. If I can also design clear penalties for refusing the government’s order, I believe the experience of this work will feel even more vivid and powerful for the audience