Project Midnight

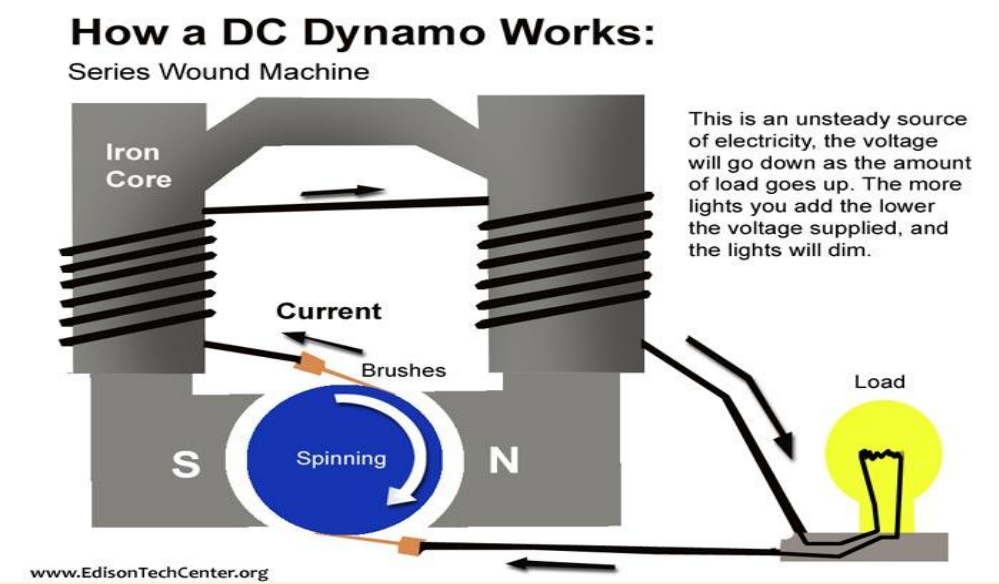
Using Superconductors, Dynamos, and Body Heat to create a sustainable energy consumption loop for the future.

Our Idea

We at Project Midnight want to create a public transportation system with the most minimal energy consumption possible. We like to think out of the box and have come up with some unorthodox yet efficient ways to achieve this goal.

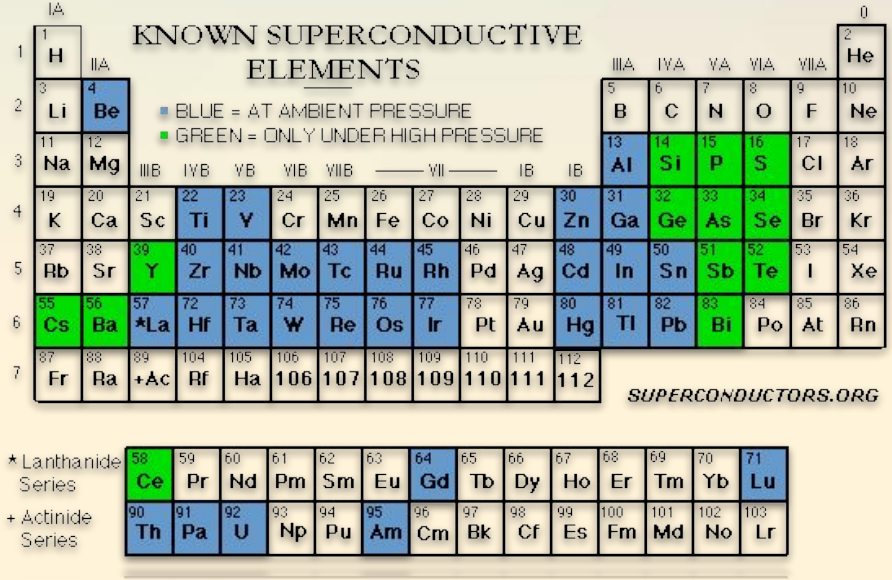
What are Dynamos?

A Dynamo is a machine for converting mechanical energy into electrical energy, typically by means of rotating coils of copper wire in a magnetic field.



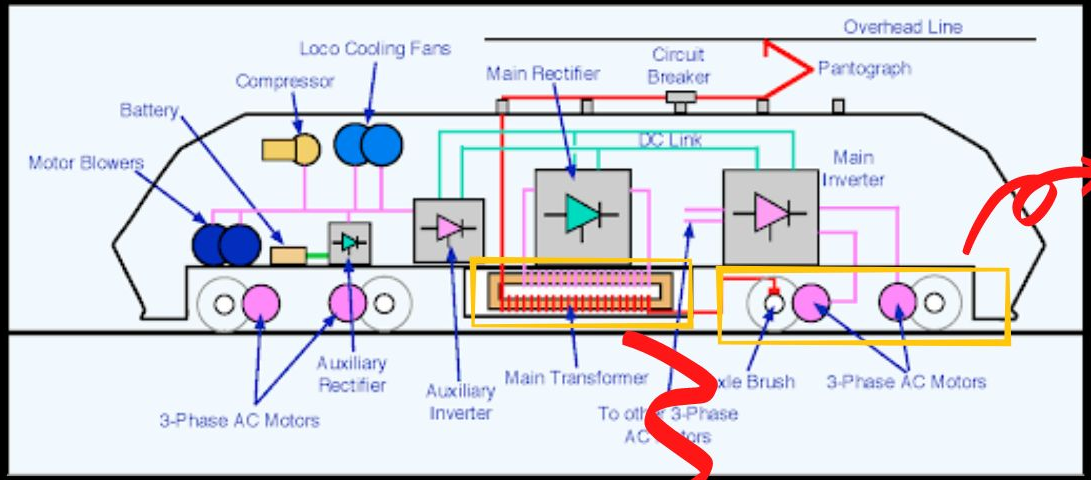
What are Superconductors?

A superconductor is a material that can conduct electricity or transport electrons from one atom to another with no resistance. Certain elements have different critical temperatures at which their resistance abruptly drops to zero.

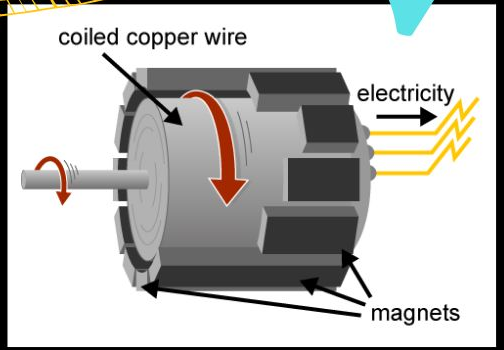


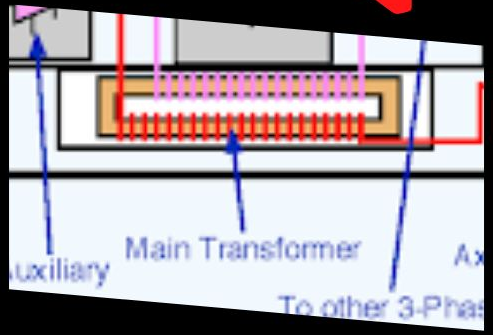
Our Innovation - Trains - Dynamo

- Electricity from the overhead lines is sent to the Main Transformer of a Train. The current is then sent to the wheels after passing through other parts of the engine.
- By connecting a coiled copper wire contraption, when the wheel rotates, the wire will rotate producing electricity, sending it back to the transformer.
- Here, kinetic energy is being converted into potential energy, creating a loop and saving massive amounts of energy.
- Energy is being reused here and it doesn't have any negative effects on the environment.
- Summarising it - The cost of running a train will drastically decrease, we will be saving energy and the cost of setting up Dynamos is extremely cheap.



WHEELS ROTATING





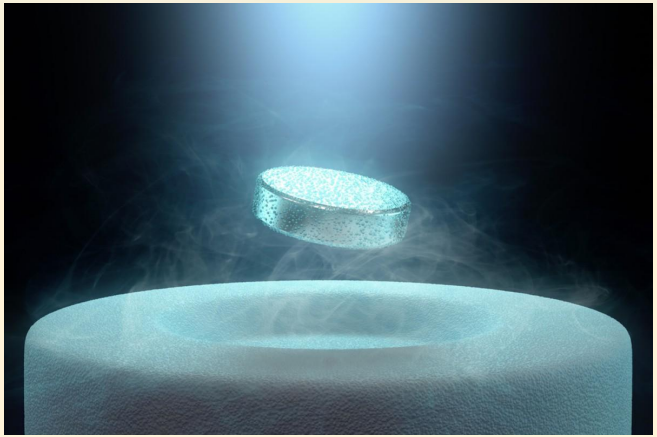
ZOOM IN ON PARTS

FLOW OF ELECTRICITY

FLOW OF KINETIC ENERGY

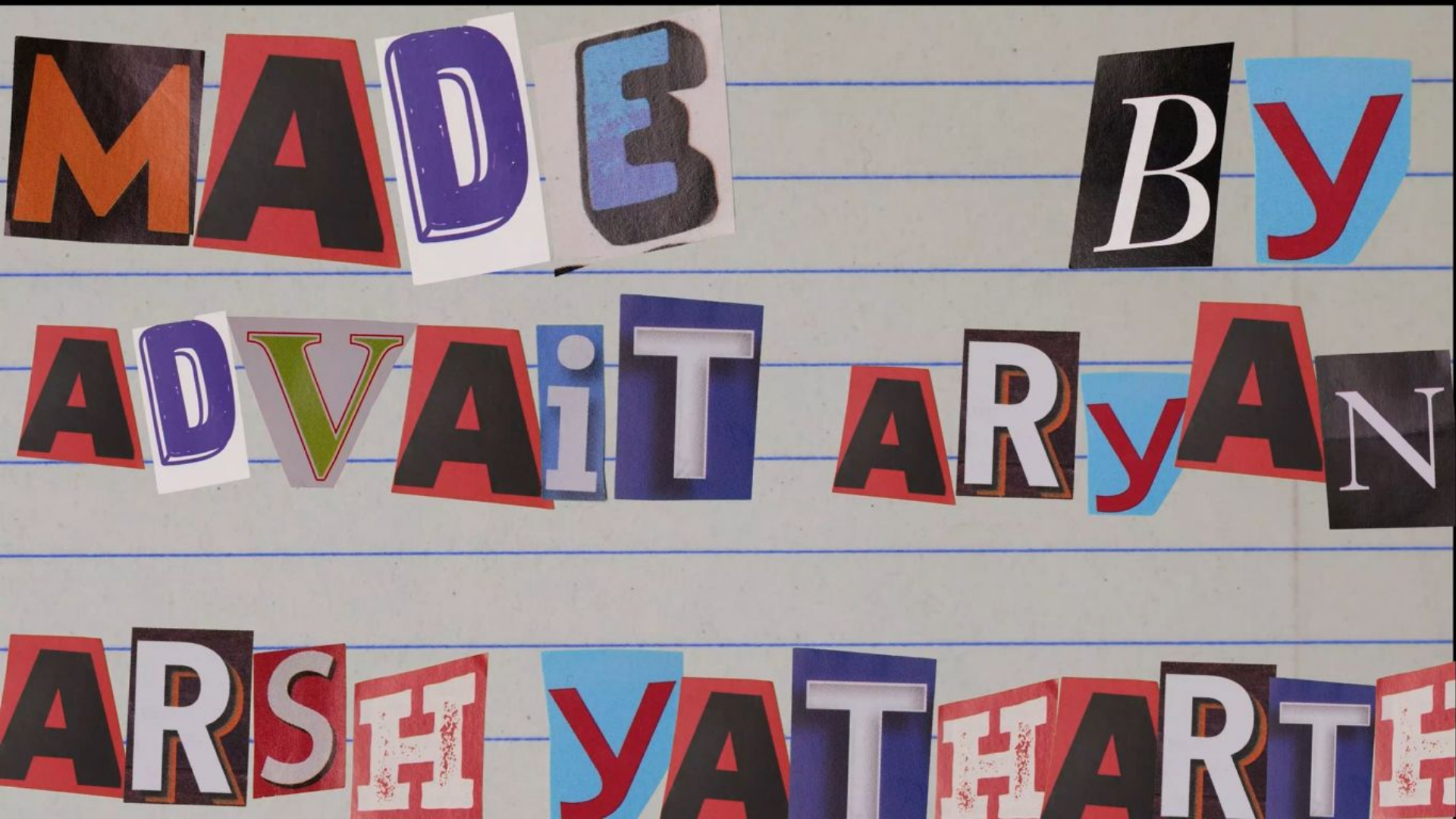
Our Innovation - Trains - Superconductors

- Upon cooling metals and compounds such as Yttrium barium copper oxide (YBCO) to 86.6 ± 1.1 K their effective resistance reduces to 0, making energy lost due to resistance close to 0.
- Integrating Superconductors into our trains will make our energy loop even more sustainable and effective at saving precious energy.



Our Innovation - Train - Body Heat

- Yes, you read that right, we can actually utilise body heat!
- Think about it—whenever you're trapped indoors with a large group of people, the combined body heat makes the temperature rise considerably.
- This technology has already been implemented in the Mall of America and Stockholm's rail station
- The heat generated by the commuters is captured by the station's ventilation system and used to warm water in underground tanks. The water is then pumped through pipes to the building about 100 yards away, where it is incorporated into the main heating system. Not only is the system environmentally friendly, it's also cost-effective
- India having the second largest population in the world allows us to use this technology very easily.


MADE BY
ADVAiT ARyAN
ARSHYATHARTH