OPTIMISATION STUDY OF HYBRID ELECTRIC DRIVETRAIN FOR 8X8 ARMOURED VEHICLE

RESEARCH PROBLEM

Global decline of Internal Combustion Engine (ICE)

Projected EV market size by 2032:

USD 444.4B

Surge in Electric Vehicle (EV) emphasises a trend away from traditional fuel-driven vehicles.

WHY HEDS?

- Enhances warfighting capabilities
- Reduces logistical burden
- Meets escalating demand for onboard power
- Improves fuel economy by 10-20%
- Extends silent watch and mobility missions

AIM

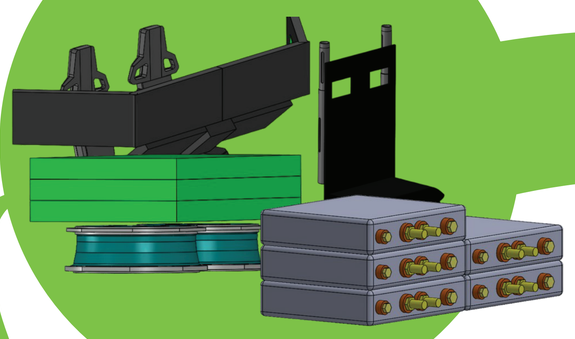
To integrate HED into 8x8 platform & optimize armoured vehicles. Enhance efficiency, functionality, and mission capabilities by addressing interior layout, storage, and ergonomics.

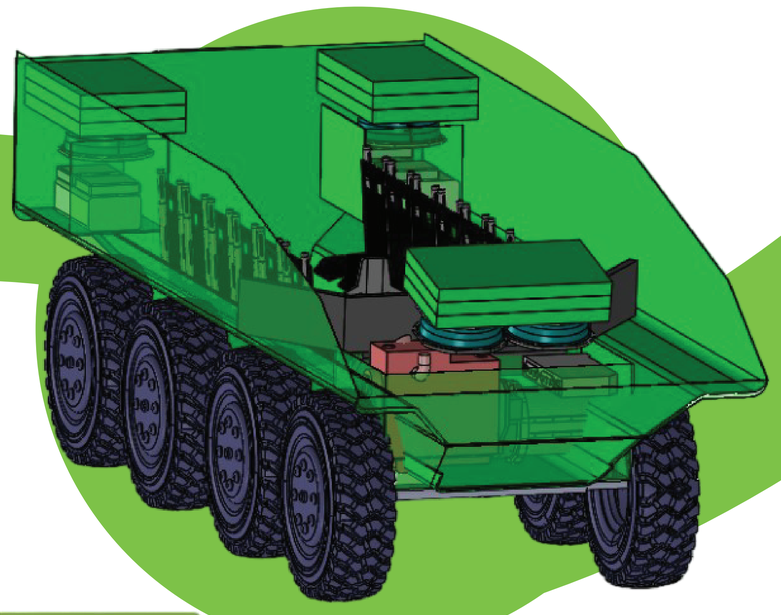
METHODOLOGY

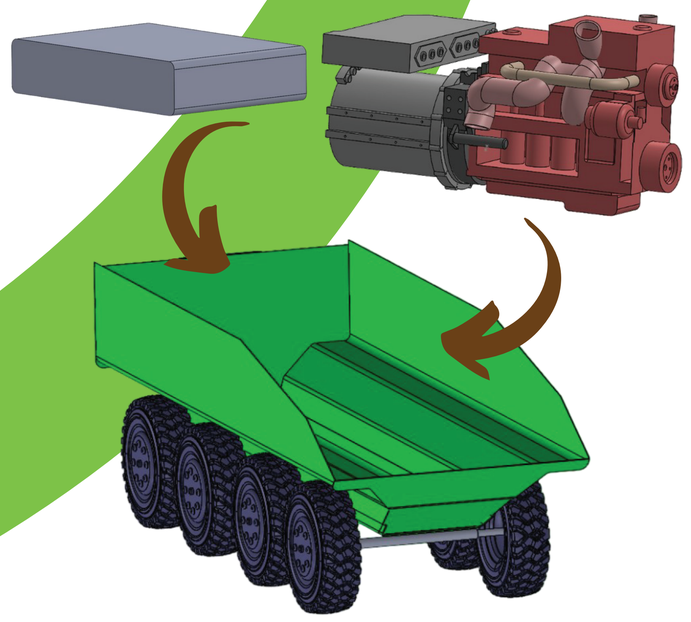
- Data on the specification of various engines, generators and batteries have been collected.

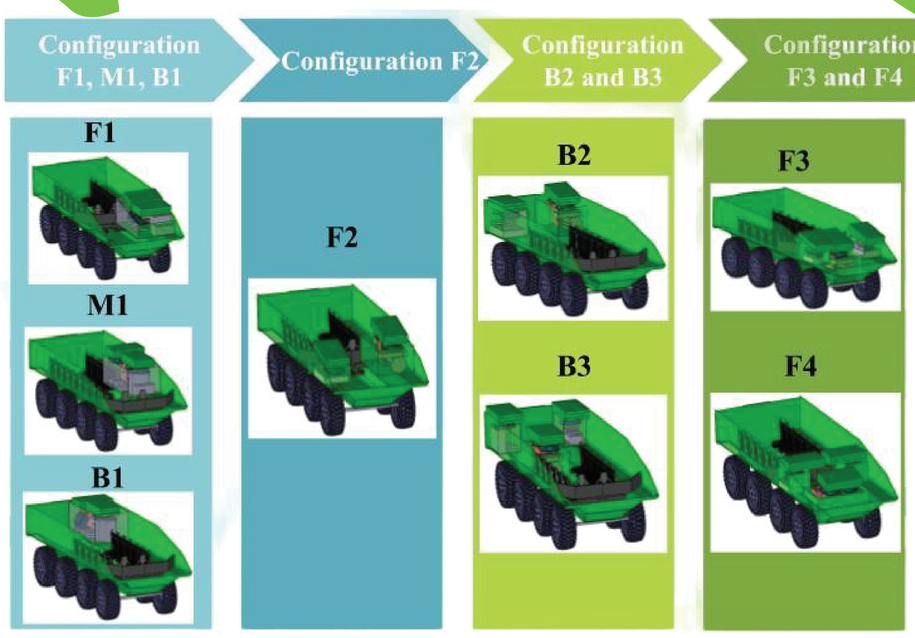
RESULTS

components

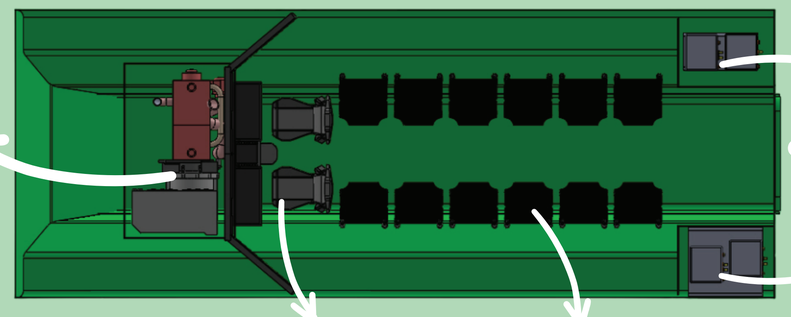








OPTIMISED CONFIGURATION: CONFIG. R1



CONCLUSION

- HED integration in 8x8 armored vehicles maximizes space, accommodating an extra crew member.
- **Ideal layout: engine and generator at the front, surrounded by batteries in the rear.**
- Benefits include:
  - Enhanced communication, crew mobility, space utilization, and stability.
  - Battery distribution ensures resilience.
  - Scalability allows for increased power demands.
  - Side-by-side positioning facilitates efficient communication.

WHAT'S NEXT?

- Advancements in energy storage tech offer alternative battlefield solutions.
- Incorporating cutting-edge remote weapon systems for adaptive space use can reshape interior design.
- A forward-looking approach is vital to align space optimization with evolving needs and technologies; ensuring compatibility with combat capabilities.

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