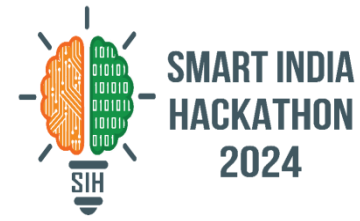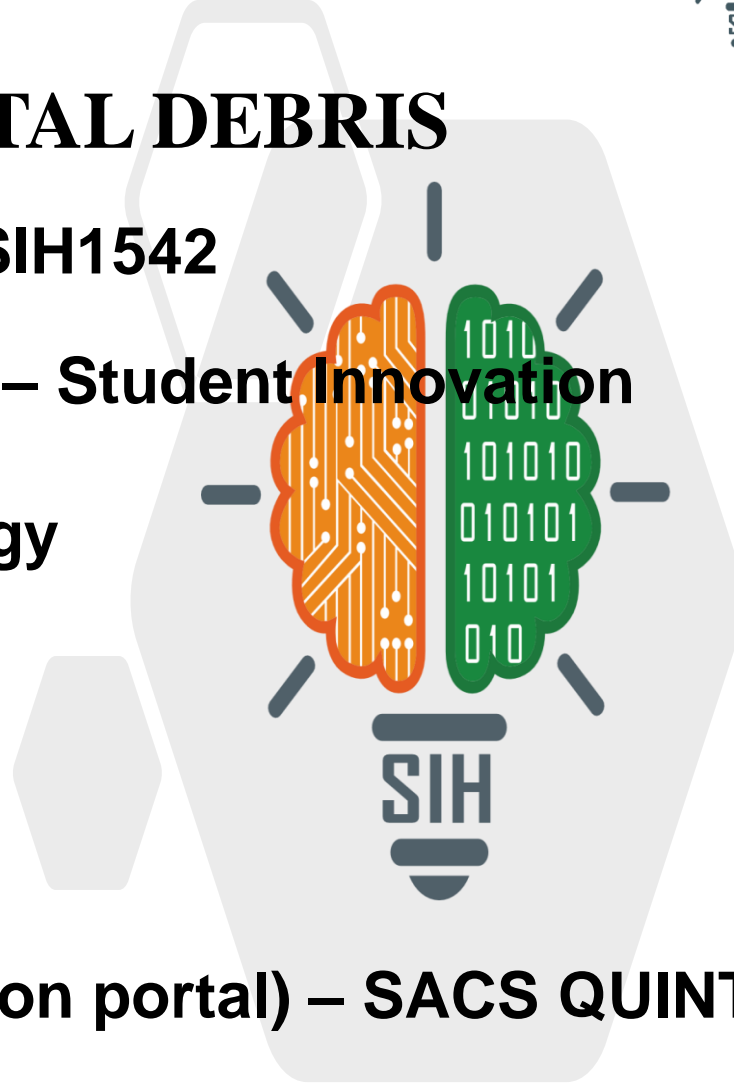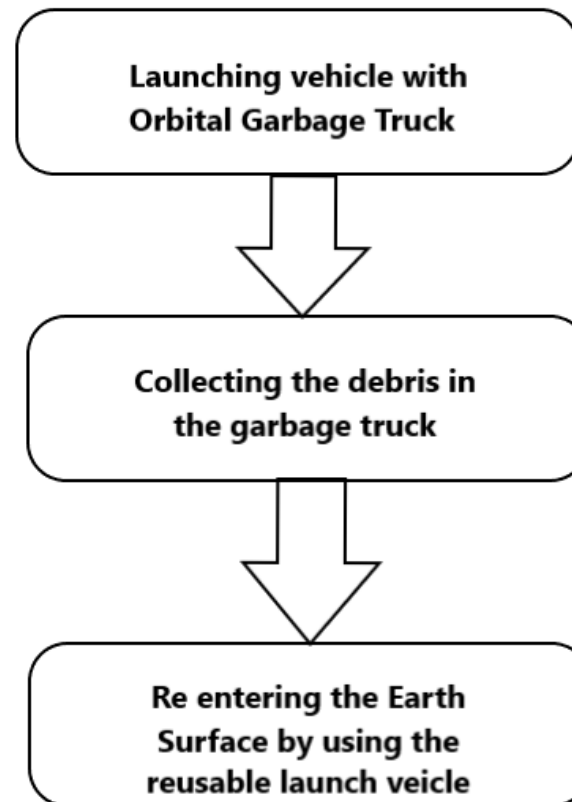# SMART INDIA HACKATHON 2024

ZERO ORBITAL DEBRIS

- **Problem Statement ID – SIH1542**

- **Problem Statement Title – Student Innovation**

- **Theme- Space Technology**

- **PS Category- Hardware**

- **Team ID-**

- **Team Name (Registered on portal) – SACS QUINTET**

ZERO ORBITAL DEBRIS

❖ <u>Proposed Solution (Describe your Idea/Solution/Prototype)</u>

- To ensure the future launching of the space vehicle and satellites.
- The launching vehicle is launched with the "Orbital Garbage Truck", It act as an capsule and it is again recollected by the reusable launching vehicle.
- Ensure the safety of the capsule used for collecting the debris.

TECHNICAL APPROACH

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┌─────────────────────────┐
│  Launching vehicle with │
│  Orbital Garbage Truck  │
└─────────────────────────┘
            ↓
┌─────────────────────────┐
│  Collecting the debris in │
│    the garbage truck    │
└─────────────────────────┘
            ↓
┌─────────────────────────┐
│  Re entering the Earth  │
│  Surface by using the   │
│  reusable launch veicle │
└─────────────────────────┘
```

FEASIBILITY AND VIABILITY

- Starship promises to drastically reduce launch costs. Paired with its immense lift capacity to orbit, starship makes dedicated orbit debris removal commercially viable & economically feasible on a multi-mission scale.

- Orbital Garbage Truck load reduced while entering the Earth's atmosphere, due to some atmospheric reaction the nanoparticles were burned out.

IMPACT AND BENEFITS

1. Costs effective.
2. Reduce new debris generation.
3. Bringing back to Earth's atmosphere, it would burn up upon re-entry.
4. Reduce the performing control for launching.
5. Reduce the threat to satellites.
6. Maintaining the use of outer space.
7. Improve the satellite communication.

RESEARCH AND REFERENCES

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