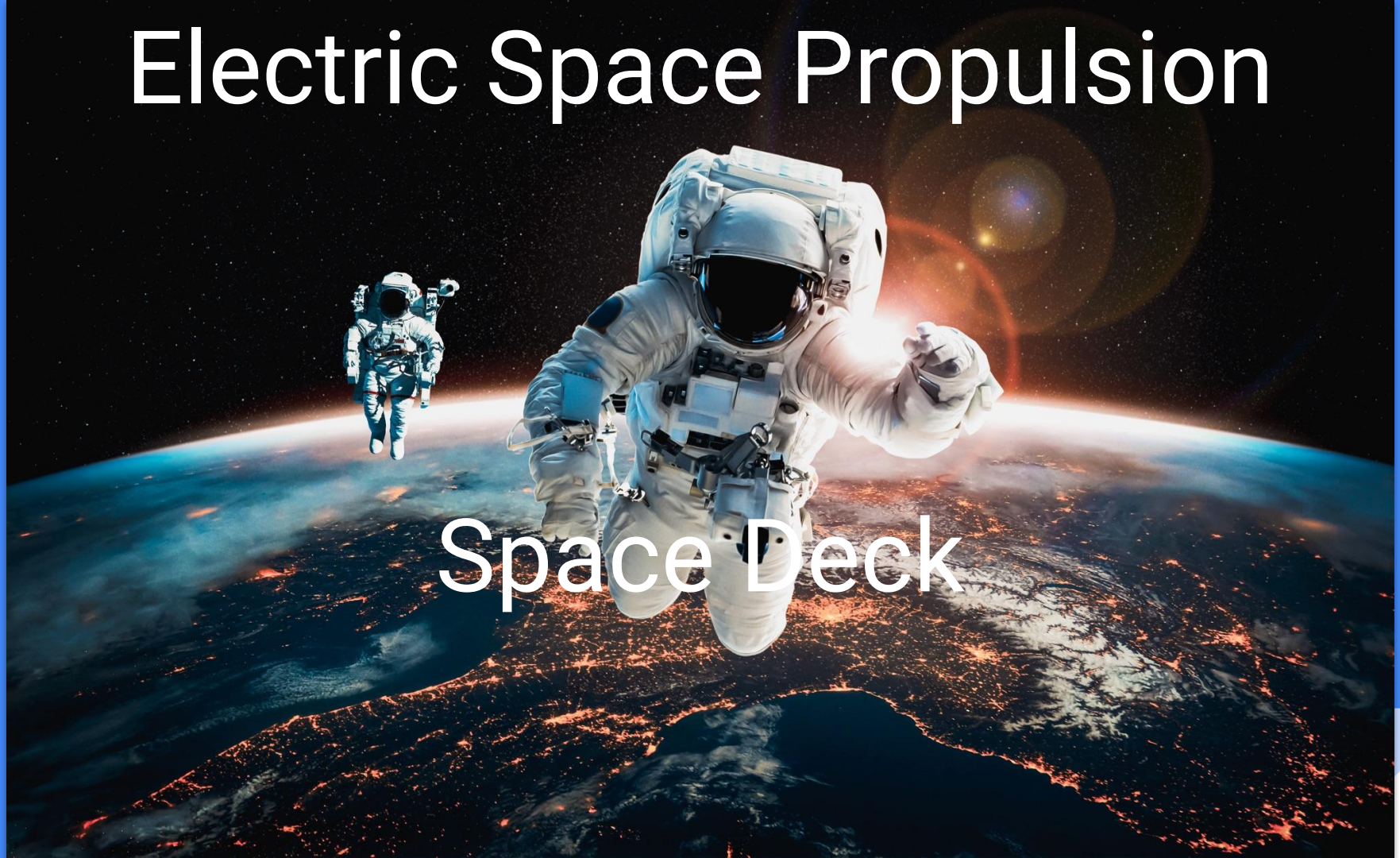
Electric Space Propulsion



Space Deck

Mission Statement:

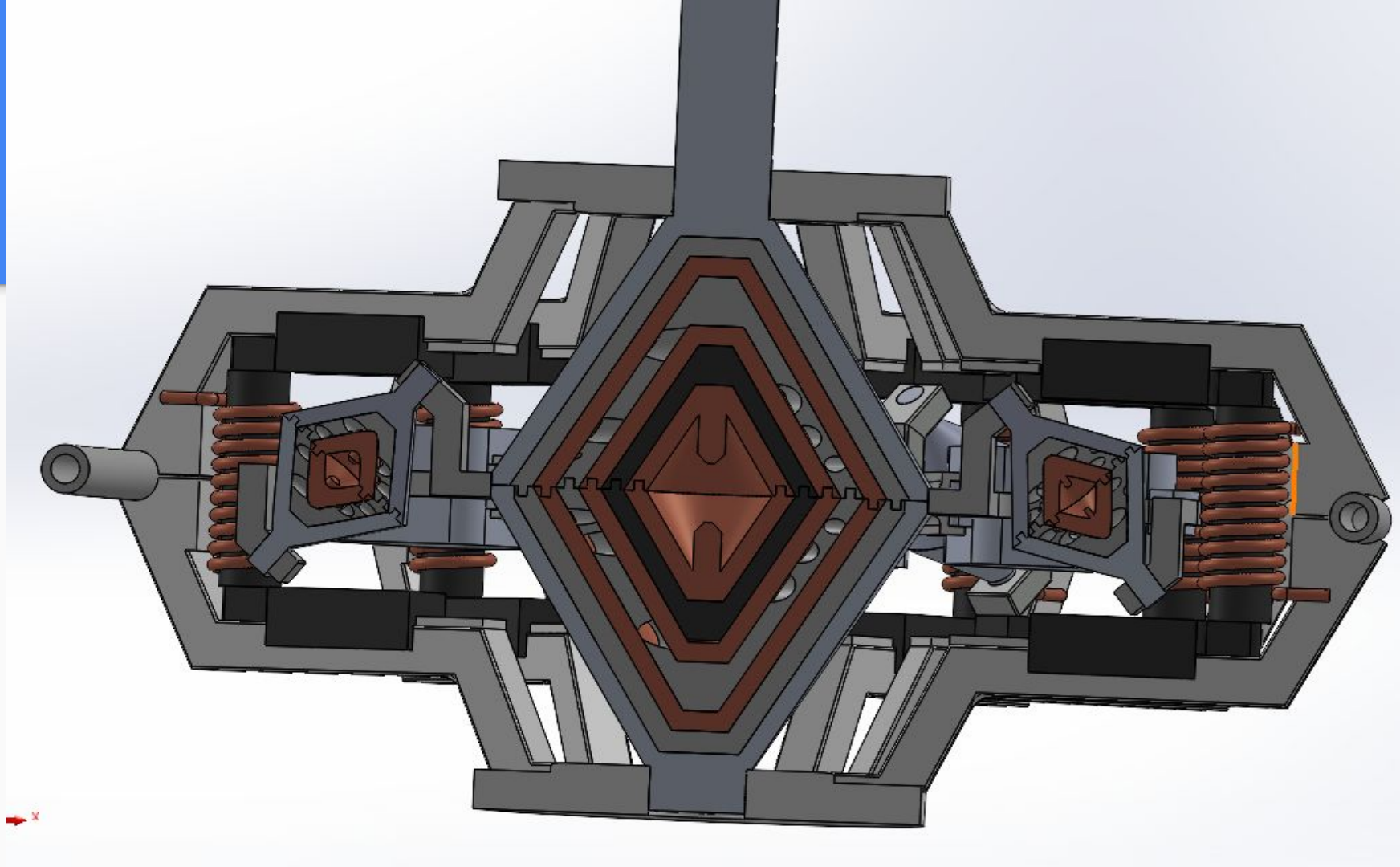
Revolutionize Civilian Space Travel

Precise Geometry + Electricity = Lift

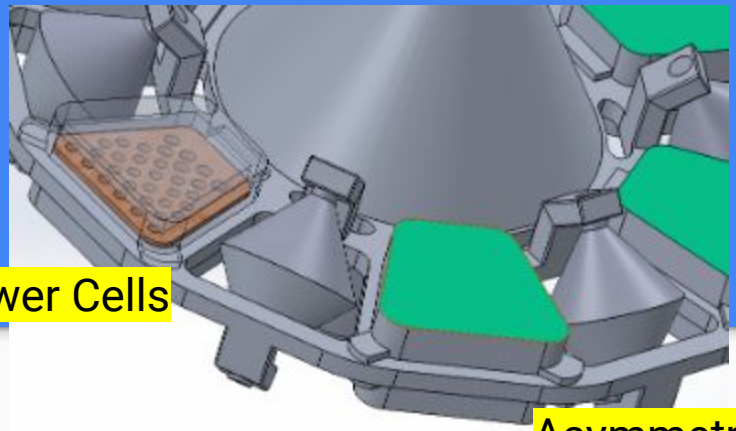
1. **Asymmetric Capacitors With Pulsed High Voltage**
2. **Counter Rotating Magnets**
3. **Piezo Crystal Power Cell**

Counter Rotating Magnets

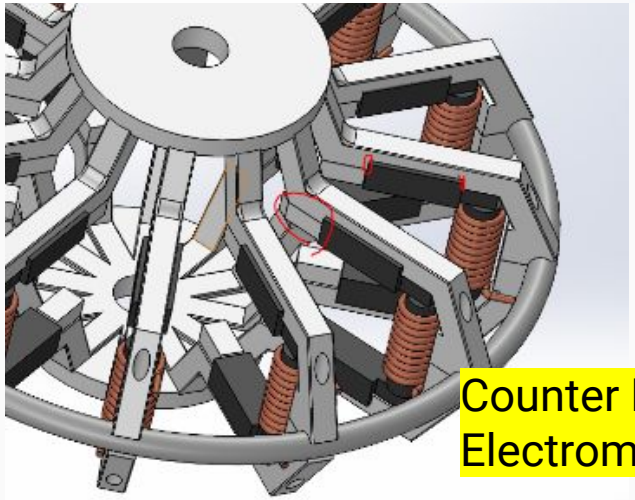
Piezo Crystal Power Cell



Piezo Crystal Power Cells

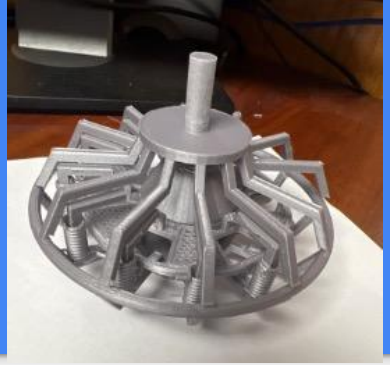


Asymmetric Capacitors with Pulsed High Voltage



Counter Rotating Electromagnets

The Proposed Innovation



- *Having an electric propulsion system capable of functioning both in Earth's atmosphere and the vacuum of space creates a drastically reduced cost to access low earth orbit.*
- *Our proposal for electric propulsion through asymmetric capacitors and pulsed high voltage serves this function.*
- *Phase 1 focuses on integrating an onboard power supply to the device, allowing for immediate use in current EVA Space Suit designs, and cubesat launches to LEO. (View White Paper Here)*

Commercial Potential - Quantitative Market Analysis

1. The market segment and potential commercial total addressable market (TAM):
    a. **EVA Space Suit Propulsion**
    b. **CubeSat Launches**
    c. **Space Tourism**
    d. **Affordable Access to Low Earth Orbit**
    e. **Phase II Custom Designed EVA Metal Space Suits**
2. Target customers:
    a. **NASA**
    b. **Aerospace Companies**
    c. **Space Tourists**
    d. **Space related R&D Companies**
3. Potential competitors:
    a. **SpaceX: Currently the leader in Affordable and Reusable Access To LEO**
    b. **Rocket Lab and Blue Origin (with further development of their space technology)**

Commercial Intent - Value Proposition

1. Commercial development:
    a. **3d Metal Printing Prototyping and Testing**
    b. **Creation of fully functional flying electric propulsion device with onboard power supply**
    c. **Electric Propulsion through Asymmetric Capacitors with Pulsed High Voltage**
    d. **Capable of Functioning Both in Earth's atmosphere and the vacuum of space**
    e. **Affordable and Reusable Access To Low Earth Orbit**
2. Risks to the commercial development plan and what mitigations can be taken over a reasonable period to lessen the risks.
    a. **Completing Objectives In Specific Time Frame**
        i. **Daily and Weekly Goals will be executed on printing and sintering prototypes**
    b. **Increasing Functional Output Time of Device**
        i. **Leveraging and testing different geometry and metallurgy for highest output potential**

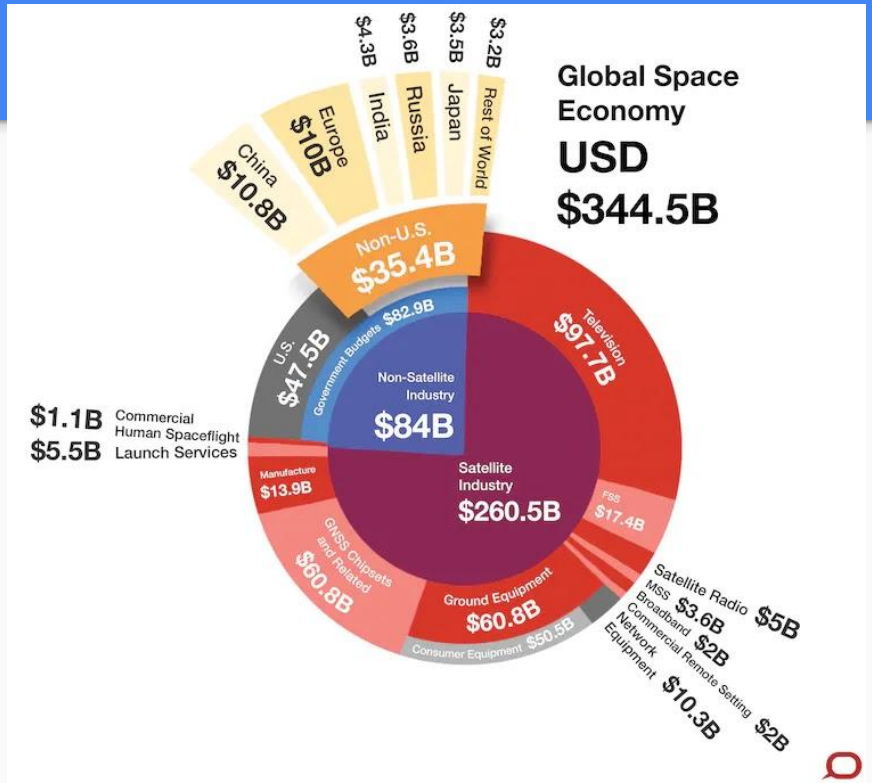
Commercial Capability - Market Entrance

1. There were 155 Cubesat Launches in 2022. Each launch cost the owner ~$30,000-$60,000 and they did not get to choose their orbit. *(they were forced to use the orbit of the main satellite payload)*
2. We will be able to offer cubesat launches at more than half the cost and the owner will be able to choose their own orbit.
3. Allowing us to overtake the cubesat market and generate a whole new market for schools and universities at an affordable rate.

Market Opportunity

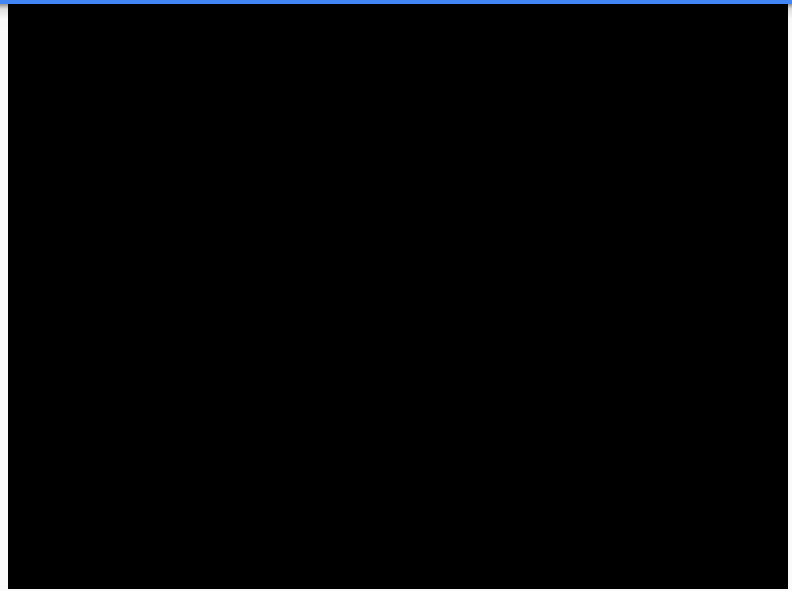
Commercialization:

- **Reliable and affordable access to low earth orbit is a priority for both NASA and the commercial sector.**
- **Having a viable, reusable platform will be the key differentiating factor in determining success as costs can be greatly reduced from millions of dollars for launching to thousands of dollars for access.**
- **The proposed electric propulsion system developed during Phase 1 can be immediately implemented into current systems, and will further advance space access capabilities with integration of a custom metal capacitor EVA space suit developed in Phase 2.**
- **Cubesat launches and integration of propulsion systems into EVA spacesuits will be the initial commercialization approach.**
- **Having an increased access to LEO at a reduced cost will allow more companies to run experiments, create new Space Tourism, and create advanced technologies to benefit humanity.**

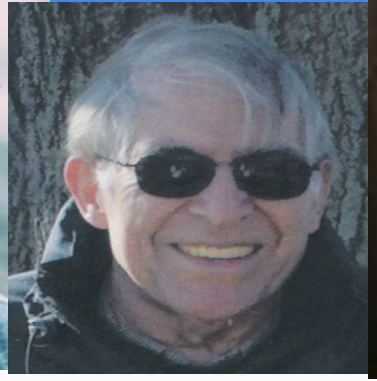


Taking Advantage of The Market Opportunity

- **Our ultimate goal is to revolutionize civilian space travel by replacing chemical rockets with electric rockets.**
- **We want to do this because chemical rockets are expensive, bad for the environment, and tend to explode.**
- **Electric rockets on the other hand are faster, safer, reusable, more energy efficient, and cheaper to build/maintain.**
- **Our initial intent is to take over the cube satellite launch industry. We chose this market specifically because these types of satellites are often overlooked compared to main satellite payloads.**
- **Our differentiating factor will be offering a fraction of the cost of current launches and the customer will get to choose the exact orbit they want.**
- **Then, We will overtake The Spacesuit Industry with an EVA Metal Capacitor Spacesuit capable of functioning without an external spacecraft.**
- **As we make Space easily accessible, we will create a whole new market of Space Hotels, Space Homes, And Medical Hospitals in Low Earth Orbit.**
- **When we transitioned from horse and buggies to cars there was a great leap in ease of access to resources.**
- **The same will be said when we go from chemical rockets to Electric**



Key Personnel Team

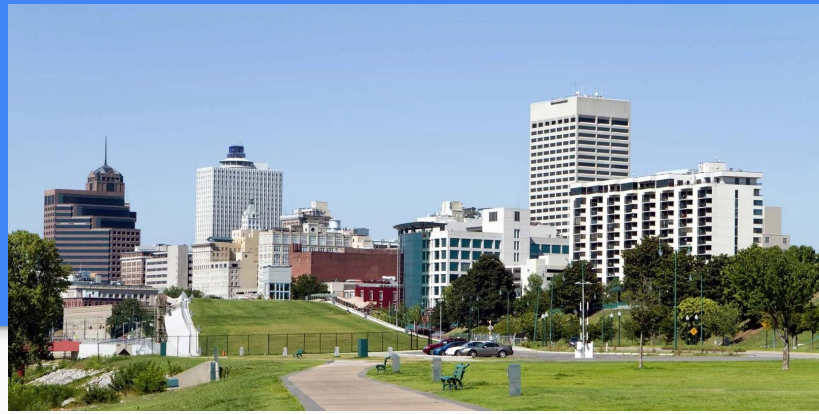


Ian: PI, Business Lead. Ian has spent the past three years in extensive study of the electric propulsion capabilities of different technologies. He will be leading the development process of the functional prototype. He received a Business Degree from Furman University (early graduation). After learning about how Nikola Tesla would use lucid dreaming to come up with his inventions and designs, Ian spent the next several years developing lucid dreaming protocols so that he and his students could achieve the same abilities. He has since trained over 40 students and has had a 100% success rate in achieving lucid dreams for all of his students.

Ben: Mechanical Engineer. MIT Graduate. Ben received a masters degree in mechanical engineering, worked on the gemini space program related to hatches and parachutes. Conducted research and design on the model jt-4, first demonstration of air cooled turbine blades and use of advanced metallurgy to improve operational efficiency and reduced maintenance requirements, which were incorporated in future gas turbine engine designs. Ben is the patent holder of a waste water purification system.

Moe: Mechanical Engineer. Masters degree in in Mechanical and Industrial Engineering. CAD Design and 3d Printing Specialist. Background in design and developing Aerospace complex electro-mechanical systems, Mechanical/Aeronautical Engineer with 20+ years in Design and Product Development.

Facilities and Equipment



- ***The Work will be carried out in a standard office space in Memphis, TN.***
- ***The R&D and prototyping process have been specifically designed to use off the shelf 3d printing technology and existing prefab kilns.***
- ***Without the need for specialized equipment, the prototypes can be produced at extreme speed and reduced costs, allowing for multiple iterations in a short time frame.***
- ***Through Virtual Foundry and Amazon.com, parts and equipment can be purchased from American companies, and American manufacturers.***
- ***Phase 1 will take 3-6 months to complete.***
- ***Phase 2 will follow the same development process and architecture as Phase 1.***

Why We Need Your Help

Step 1

Capital Investment of $500k to Fully Develop and Test Electric Propulsion Device

Step 2

$100-200 Million Annual Revenue Generated From CubeSat Launches

(~10-20k units annually)

Step 3

EVA Metal Spacesuit Production

$1 Billion Annual Sales


Thank You!
Thank you for your time and consideration.
We look forward to working with you!
-Ian
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