Supported By

NITI Aayog

ATAL INNOVATION MISSION

ATAL INCUBATION CENTER

AIC T-Hub

SpaceTech

Cohort 1

Startups

About AIC - T-Hub SpaceTech

AIC T-Hub, hosted at T-Hub Foundation in Hyderabad, fosters India's pioneering innovation ecosystem. Since its inception in 2015, it has empowered over 1,100 startups with access to technology, talent, mentors, and resources.

AIC T-Hub, sanctioned under the Atal Innovation Mission of the Government of India, supports and encourages SpaceTech startups by creating a robust ecosystem that grants access to investors, global mentors, industries, service providers, and fellow entrepreneurs.

The focus is on aiding SpaceTech startups in commercializing their innovations by providing market insights, assisting with business plans, and facilitating access to growth resources.

Hindustan Magnesium Products Private Ltd

Company Name

Hindustan Magnesium Products Private Ltd

Founders & Team

Director: Sundeep Konudula
Director: Sujit Yalamanchili

Years of Operation and Location

R&D since 2011, Started production facility since 9 months and location is Medchal, Hyderabad

Stage

Prototyping
Established proven technology and process to cast, machine and coat space grade magnesium alloys and capable to deliver finished magnesium alloy components.

Elevator Pitch about the product/service

Hindustan Magnesium has been successful in developing casting process technology for several magnesium alloys that are widely used in Automotive and Space / Defence Applications. Magnesium is a lightweight structural metal which makes it ideal for projects where weight reduction is a key concern. Magnesium poses no toxicity hazard and is highly biocompatible providing the project the post-life green credential. Over the years the team had developed process to address the challenges in handling magnesium alloys and had been serving customers in Defense, Aerospace, and Automotive sectors. Some of the applications for Magnesium alloys are

- Helicopter gearboxes, rotor blades and landing wheels: Magnesium alloys has very good strength to weight ratio, damping capacity and therefore is the choice of the material in harsh vibration environments and demand for reduction in weight.
- Automotive alloy wheels, housings & casings: With Automotive industry focusing on weight reduction to increase the km range in electric vehicle, Magnesium alloys provide best combination of weight to strength ratio at reasonable price.
- Medical implants and surgical devices: Magnesium based surgical implants offer advantages because of its osteoconductive properties, biodegradability and biocompatibility. It is much significant in using as bone implants.
- Camera, Laptops and phone casings: The lightweight nature of Magnesium makes it ideal choice for many handheld electronic components.
- High performance bikes and wheels: Magnesium, due to it's resistance to mechanical vibration, it adds comfort to the ride and results in less energy consumption due to reduced weight.
- Aircraft and automotive seats: Magnesium, due to it's resistance to mechanical vibration, it adds comfort to the ride and results in less fuel/energy consumption due to it's reduced weight.

Pain point being solved

While Magnesium with it's composition provides several advantages over other metals in some key areas such as less weight, high damping capacity and highly biocompatible, it also poses some challenges. The characteristics that act as pain points for magnesium are it's flammability, prone to galvanic corrosion, reduced creep resistance and low ductility. To address these challenges, Hindustan Magnesium has established a manufacturing process to handle a flammable material and also proven surface coating solution to address corrosion and reactivity. With design changes, our teams production process, machining and coating solutions provided at Hindustan Magnesium, we have been successful in delivering the desired components to the clients.

Traction

HM got traction from all Indian Defence organizations for product prototyping

Market Size (Opportunity) and Trends

Multi Billion USD Oppurtunity

Business and Revenue Model

GTM

Key Competitors

None in India, Majorly overseas in Europe, Russia, and the USA

Competitive Advantage

One-stop solution for end-to-end manufacturing from alloy preparation to finished machined and coated product

Funding and Valuation

The Last round raised 200,000 USD March 2023, and a Total TBD

Comments on how your team is the best to solve the problem

Experienced with the design and manufacturing of Magnesium products after years of R&D

Do you possess necessary skills required to scale up your startup?

R&D since 2011, Started production facility since 9 months and location is Medchal, Hyderabad

Insights into Product Maturity

Empaneled as Isro Supplier

How are you different?

No domestic one stop solution for Magneisum products

Your USP

Handling of Magnesium

NVEEAS LABS.OPC

Company Name

NVEEAS LABS.OPC

Founders & Team

CH. NISSI VIJAY (FOUNDER)
ALLEN JOSEPH (SOFTWARE ENGINEER)
SRIKANTH (EMBEDDED ENGINEER)

Years of Operation and Location

2 YEARS
NADERGUL, HYDERBAD

Stage

prototyping
Development of product

Elevator Pitch about the product/service

Imagine a machine that can use ultrasonic waves to scan any material or tissue and create a 3D image of its internal structure and condition. A machine that can also use AI to analyze the data and provide insights and recommendations based on the results. A machine that can be used for various purposes, such as detecting defects in structures, diagnosing diseases in humans and animals, and monitoring health and wellness. That's what our AI-based phased ultrasonic structural and medical analysis machine can do for you. It's a portable, easy-to-use, and affordable solution that can revolutionize the fields of engineering, medicine, and beyond.

Pain point being solved

Portable ai based non operator-dependent phased ultrasonic scanners for medical and structural analysis

Traction

AI-based phased ultrasonic scanners are still in their early stages of development, but they have the potential to revolutionize the way we perform medical and structural analysis in space tech.

Here are some of the key benefits of AI-based phased ultrasonic scanners:
Improved accuracy and reliability: AI can be used to develop algorithms that can automatically interpret ultrasonic images, which can help to improve the accuracy and reliability of diagnoses.

Reduced operator dependence: AI-based scanners can be programmed to perform scans autonomously, which can reduce the need for trained operators and make ultrasonic imaging more accessible in remote or challenging environments.

Increased efficiency: AI can be used to automate the analysis of ultrasonic data, which can help to speed up the diagnostic process and improve patient outcomes.

In the **space tech domain**, AI-based phased ultrasonic scanners could be used to inspect spacecraft and satellites for defects, monitor the structural integrity of space stations, and diagnose medical conditions in astronauts.

Market Size (Opportunity) and Trends

The global market for AI-based phased ultrasonic scanners is expected to reach USD 3.7 billion by 2028, according to a report by MarketsandMarkets. The market is expected to grow at a CAGR of 18.2% from 2023 to 2028.

Business and Revenue Model

Value Proposition:
AI-based phased ultrasonic scanners for faster, more accurate, and less invasive medical imaging in space tech and other challenging environments.
Target Market:
Space tech organizations such as NASA, ESA and other private space companies (Boeing, SpaceX, etc.)
Hospitals and clinics operating in remote or challenging locations
Military and first responder organizations
Problem Solved:
The need for a portable, reliable, and easy-to-use medical imaging device that can be used in space tech and other challenging environments.
Traditional ultrasound scanners are bulky and require a lot of power to operate. They also require trained personnel to operate. AI-based phased ultrasonic scanners are portable, lightweight, and require less power to operate. They can also be operated by non-trained personnel.

Solution:
AI-based phased ultrasonic scanners that can be used to take high-quality images of internal organs, tissues, and blood vessels. The scanners use AI to automatically identify and analyze the images, which can help to reduce the time and effort required to diagnose conditions.

Revenue Mode

One-time purchase: Customers can purchase AI-based phased ultrasonic scanners on a one-time basis. This is the most common revenue model for medical imaging devices.
Subscription: Customers can subscribe to a monthly or annual plan to access AI-based phased ultrasonic scanners. This model is becoming increasingly popular, as it allows customers to spread the cost of the device over time.
Pay-per-use: Customers can pay per use of AI-based phased ultrasonic scanners. This model is less common, but it may be a good option for customers who only need to use the device occasionally.

Go-to-Market Strategy

Direct sales: AI-based phased ultrasonic scanners can be sold directly to space tech organizations, hospitals and clinics, military and first responder organizations. This can be done through a variety of channels, such as online sales, trade shows, and conferences.
Distributor sales: AI-based phased ultrasonic scanners can also be sold through distributors. This can be a good option for reaching a wider audience and for getting the product into the hands of customers more quickly.

OEM sales: AI-based phased ultrasonic scanners can also be sold to original equipment manufacturers (OEMs). OEMs can then integrate the scanners into their own products, such as spacecrafts or mobile medical units.

Marketing Plan

Target Audience:
Space tech organizations
Hospitals and clinics operating in remote or challenging locations
Military and first responder organizations
Key Messages:
AI-based phased ultrasonic scanners are portable, reliable, and easy-to-use medical imaging devices that can be used in space tech and other challenging environments.
AI-based phased ultrasonic scanners can provide faster, more accurate, and less invasive medical imaging.
AI-based phased ultrasonic scanners can help to improve patient care and reduce costs.

Marketing Channels:

Online marketing: AI-based phased ultrasonic scanners can be marketed online through search engine optimization (SEO), pay-per-click (PPC) advertising, and social media marketing.
Trade shows and conferences: AI-based phased ultrasonic scanners can be marketed at trade shows and conferences where space tech professionals, healthcare professionals, and military and first responder professionals gather.
Direct sales representatives: AI-based phased ultrasonic scanners can be marketed through direct sales representatives who can visit space tech organizations, hospitals and clinics, and military and first responder organizations.

Sales Plan

Sales Process:
Lead generation: AI-based phased ultrasonic scanner leads can be generated through a variety of channels, such as online marketing, trade shows and conferences, and direct sales representatives.
Lead qualification: Once leads have been generated, they need to be qualified to determine if they are a good fit for AI-based phased ultrasonic scanners. This can be done by asking questions about the lead's needs and budget.
Lead nurturing: Qualified leads need to be nurtured until they are ready to purchase. This can be done by sending them educational content, offering them free consultations, and following up with them regularly.
Closing the sale: Once a lead is ready to purchase, the salesperson needs to close the sale. This can be done by negotiating a price and finalizing the terms of the sale.
Pricing Strategy:
AI-based phased ultrasonic scanners are a new and innovative product, so it is important to price them competitively. However, it is also important to price them high enough to cover the costs of development and manufacturing.

One pricing strategy that can be used is to price AI-based phased ultrasonic scanners slightly below the competition. This will make AI-based phased ultrasonic scanners more attractive to customers. Another pricing strategy is to offer a variety of pricing options, such as a one-time purchase price
Subscription plan: A monthly or annual subscription plan that gives customers access to AI-based phased ultrasonic scanners for a fixed price.
Pay-per-use plan: A plan where customers pay a fee each time they use the AI-based phased ultrasonic scanners.

The company could also offer a combination of pricing options, such as a one-time purchase price with a subscription plan option. This would give customers the flexibility to choose the pricing plan that best fits their needs.

Key Competitors

GE Healthcare
Philips Healthcare
Siemens Healthineers
Fujifilm Sonosite
Hitachi Healthcare
Mindray

Competitive Advantage

competitive advantages that AI-based phased ultrasonic scanners may have over traditional ultrasound scanners include:
Improved image quality: AI can be used to improve the image quality of ultrasound scans by reducing noise and artifacts.
Enhanced visualization: AI can be used to enhance the visualization of ultrasound images by providing 3D and 4D views of the anatomy.

Automated measurements: AI can be used to automate the measurement of anatomical structures in ultrasound images, which can help to improve the accuracy and consistency of measurements.
Differential diagnosis: AI can be used to help clinicians with differential diagnosis by providing insights into the possible causes of abnormalities in ultrasound images.
Predictive analytics: AI can be used to develop predictive analytics models that can help clinicians to identify patients who are at risk of developing certain diseases.
These specific advantages could make AI-based phased ultrasonic scanners the preferred choice for a variety of medical imaging applications, such as:
Cardiovascular imaging: AI-based phased ultrasonic scanners could be used to improve the accuracy and efficiency of cardiovascular imaging procedures, such as echocardiography and cardiac catheterization.
Oncological imaging: AI-based phased ultrasonic scanners could be used to improve the detection and diagnosis of cancer.
Obstetric and gynecological imaging: AI-based phased ultrasonic scanners could be used to improve the detection and diagnosis of fetal abnormalities and gynecological diseases.
Musculoskeletal imaging: AI-based phased ultrasonic scanners could be used to improve the diagnosis and treatment of musculoskeletal diseases.
Interventional imaging: AI-based phased ultrasonic scanners could be used to improve the accuracy and safety of interventional procedures, such as biopsies and ablations.

Funding and Valuation

The valuation of the AI-based phased ultrasonic scanners market is difficult to estimate, as it is a relatively new and rapidly growing market. However, based on the current market trends and the competitive landscape, it is estimated that the global market for AI-based phased ultrasonic scanners will be worth USD 3.7 billion by 2028.

Comments on how your team is the best to solve the problem

My team is the best team to develop AI-based phased ultrasonic scanners. We are creative and innovative, and we love to take risks. We are also hard workers and we use advanced technologies such as AI, DSP, beamforming and beamsteering technologies in phased ultrasonics.
Our creativity and innovation will allow us to come up with new and innovative ideas for how to use AI to improve the performance of phased ultrasonic scanners. Our willingness to take risks will allow us to try new things and experiment with new ideas. This is essential for developing innovative solutions. Our hard work will allow us to put in the long hours and dedication required to bring our ideas to life. Our expertise in AI, DSP, beamforming, and beamsteering technologies in phased ultrasoics will allow us to develop AI-based phased ultrasonic scanners that are more accurate, efficient, and reliable than traditional phased ultrasonic scanners.
In addition to these factors, our team's passion for developing AI-based phased ultrasonic scanners is also a major advantage. This passion will motivate us to work hard and overcome any challenges we may face in developing this new technology.

Do you possess necessary skills required to scale up your startup?

Yes, we do

Insights into Product Maturity

Differentiation: we found find ways to differentiate their products from the competition. This can be done by focusing on niche markets, adding new features, or improving the user experience.

Innovation: we continue to innovate, even in mature markets. This can be done by investing in research and development, partnering with other companies, or acquiring startups.

Customer service: we provide excellent customer service in order to retain our customers and attract new customers. This can be done by being responsive to customer inquiries, resolving customer issues quickly and efficiently, and offering loyalty programs.

How does your business model help you succeed?

It provides clarity and focus: My business model helps businesses to understand their core value proposition and how they will differentiate themselves from the competition. This clarity and focus can help businesses to make better decisions about their products, services, marketing, and pricing.
It helps to attract and retain customers: My business model can help businesses to attract customers by offering them a compelling value proposition. It can also help businesses to retain customers by providing them with a superior customer experience.
It helps to generate revenue and profits: my business model can help businesses to generate revenue and profits by creating a sustainable revenue stream. This revenue stream can then be used to invest in the business and grow.

Your USP

Increased accuracy: AI can be used to analyze the ultrasonic data and identify even the smallest defects that would otherwise be invisible to the naked eye. This can lead to earlier detection of damage, which can save time and money in the long run.
Improved efficiency: AI can be used to automate the ultrasonic testing process, which can free up technicians to focus on other tasks. This can lead to increased productivity and efficiency.
Reduced costs: The use of AI can help to reduce the overall cost of ultrasonic testing by eliminating the need for manual inspection. This can save businesses money in the long run.
Enhanced safety: AI can be used to identify potential hazards and risks, which can help to prevent accidents and injuries.
Improved decision-making: AI can be used to provide insights and recommendations that can help engineers and technicians make better decisions about structural integrity.

Onnes

Company Name

Onnes

Founders & Team

Dr. Ram K Aluru & Dr. Vikram Raghavan

Years of Operation and Location

Two Years, Hyderabad

Stage

Building MVP

Elevator Pitch about the product/service

When it comes to space rockets, engines and thrusters get most glory but without fuel tanks, those rockets are not going anywhere. Current fuel tanks which carry the cryogenics liquids are made of metals which are heavy, inefficient and expensive limiting the payload liftoff. Through our innovative fuel tank technology using carbon polymers we have designed next generation fuel tanks which are extremely light, strong and leak tight like metals enabling extra tons of payload liftoff making ambitious space travel missions a reality.

Pain point being solved

Reducing the weight of cryogenic propellant tanks using innovative carbon fiber- reinforced plastic tank technology enabling extra tons liftoff of payloads for ambitious space missions.

Traction

Currently getting our MVP validated

Market Size (Opportunity) and Trends

Carbon fiber-reinforced plastic market size is currently valued at USD 5 billion and expected to reach USD 14 billion by 2028

Business and Revenue Model, GTM

Revenues will come from both B2B and B2C segments. Pricing will be based on the classification of tanks into various categories.

Key Competitors

Few International players with limited operations in India.

Competitive Advantage

Domain expertise and being able to manufacture indigenously in India. Right time to enter a market which is about to get demanding in the next three years.

Funding and Valuation

We are currently bootstrapped.

Comments on how your team is the best to solve the problem.

Our team has the right blend of R&D and industrial experience and Industry forecast to solve the problem.

Do you possess the necessary skills required to scale up your startup?

One-stop solution for end-to-end manufacturing from alloy preparation to finished machined and coated product

Insights into Product Maturity

We are confident that product maturity will happen in two to three years from now once the production is done in volume based on the customer orders.

How are you different?

In addition to having expertise in innovative polymer composite technologies, we have end to end knowledge on cryogenics from room temperature to ultra-low temperatures which will be a great value addition to space tech companies.

How does your business model help you succeed?

The business model has got the right balance to focus both the niche sectors such as space and on the volume sectors such as H2 economy in non-space sectors.

Your USP

The right team and innovative tank technology approaches using carbon composites with new architectures and combinations.

SpanTrik

Company Name

SpanTrik

Founders & Team

Kajal Rajbhar, who serves as CEO,
Hitendra Singh, who is the co-founder and CTO.

Years of Operation and Location

The company has been in operation for one and half years and is located in the Delhi, India.

Stage

Early growth stage

Elevator Pitch about the product/service

SpanTrik is a space launch services company developing the next generation of reusable launch vehicles. Our flagship product, Raven, is a reusable rocket that offers a cost-effective, reliable, and efficient solution for satellite launches.

Pain point being solved

We aim to solve the problem of high costs and lack of reusability in current satellite launch methods.

Traction

We have built 30 high-powered Rockets and launched them successfully and also tested a Reusable 2.5kN kN solid fuel rocket engine.

Market Size (Opportunity) and Trends

The global space launch service market was estimated to be around $16.9 billion USD in 2022. The market for a rocket like Raven would primarily be the satellite launch sector.

Business and Revenue Model,

Our business model is based on providing affordable and reliable launch services to our customers, with pricing starting at $25 million USD per launch. Our go-to-market strategy involves targeted advertising, attending industry conferences and events, and leveraging our network of industry contacts.

Key Competitors

Our competitors include other space launch service providers. Ex, Spacex, RocketLab, ULA, Relativity space, Firefly aerospace, Agnikul cosmos, Skyroot aerospace.

Competitive Advantage

Our competitive advantage lies in the Low-cost Manufacturing, Operational cost, reusability of our Raven rocket and our focus on innovative technologies.

Funding and Valuation

We have Received Grant of 20 Lakh INR from SISFS by startup India. We are seeking funding to further develop and commercialize our reusable launch vehicle, Raven. Our valuation is not disclosed at this time.

Comments on how your team is the best to solve the problem.

Our team has a proven track record of success in designing and launching rockets, Our philosophy in Design and development with ese of manufacturing method and low cost raw material. and we are committed to driving the space industry forward through sustainable and cost-effective solutions.

Do you possess the necessary skills required to scale up your startup?

Our team possesses the necessary skills required to scale up the startup, with expertise in rocket design, analysis, and propulsion systems.

Insights into Product Maturity

Our product prototype in in design phase, the rocket engine manufacturing and Test bed, is at the stage of development and testing.

How are you different?

We are different from our competitors due to our focus on reusability and cost-effectiveness, as well as our Approach to development and manufacturing method and low-cost manufacturing method with Advance Additive manufacturing to innovative technologies.

How does your business model help you succeed?

Our business model, which is based on providing affordable and reliable launch services, helps us succeed by meeting the needs of our customers while maintaining profitability.

Your USP

Our unique selling point is the Raven rocket, a reusable launch vehicle that offers a cost-effective, reliable, and efficient solution for satellite launches. Advance materials, Low-cost manufacturing and design Philosophy.

STEM & Space

Company Name

STEM Research & Innovation

Founders & Team

Present team size 12 , passionate astronomers and space enthusiastic qualified as either engineer, astrophysicst or PG in Physics
Co-founder- Gautam Agawari Dr Mila Mitra Ms Hema Verma

Years of Operation and Location

Registered in 2017, Operational from April 2018, New Delhi, Leadership based out of Delhi, Some of team members, operating remotely.

Stage

Revenue stage, The School platform is pre revenue stage.

Elevator Pitch about the product/service

Imagine a world where every student is inspired to explore the wonders of space. STEM & Space is on a mission to make space education accessible to schools through 'CosmicYaan' and homes with 'Cosmic Kids Club. and Outreach through the National Astronomy Challenge Olympiad.

Pain point being solved

We address the challenge of restricted space education access by offering DIY platforms for schools and parents, ensuring affordability. We are mission driven organisation, dedicated to cultivating a robust scientific temperament, promoting literacy, and nurturing future talent for a strong and knowledgeable space economy.

Traction

INR 57 lacs (-11L), to date, INR 62 lacs, on way to cross 90-100 lacs, operationally breaking even.

Market Size (Opportunity) and Trends

NASA invests 1-2% of its annual budget in STEM education and India eyes a 40 trillion USD space economy by 2040, the demand for STEM-focused talent is evident. Our initiative strategically taps into this market, aligning with global trends in STEM education, and the increasing interest in space exploration. Positioned as a timely and strategic player.

Business Model

Our business model seamlessly integrates B2B and B2C components. In the B2B sector, CosmicYaan delivers subscription-based space education for schools, featuring the National Astronomy Challenge and hands-on STEM workshops. Meanwhile, Cosmic Kids Club, our B2C offering, provides parents with a subscription-based platform for engaging space content. We also explore revenue avenues through potential partnerships and licensing agreements GTM- For schools, our approach involves direct outreach, workshops, and educational partnerships, showcasing the benefits of CosmicYaan and the National Astronomy Challenge. In the B2C realm, our strategy involves cost-effective online outreach and engagement to connect directly with interested parents and students. This approach minimizes acquisition cost.

Key Competitors

Regional players in the Space domain.

Competitive Advantage

STEM & Space uniquely combines CosmicYaan for schools and Cosmic Kids Club for individual learners, strengthened by the competitive National Astronomy Challenge and expert-curated content. Our leadership in STEM education is fortified by innovative platforms, strategic collaborations like Scholastic, and global recognition, (e.g.Global Hands-on Astronomy, COPPAR23) firmly establish our leadership in STEM education

Funding and Valuation

We are bootstrapped since inception

Comments on how your team is the best to solve the problem

Our team, consisting of passionate astronomers and space enthusiasts, uniquely positions us to address challenges in space education. With a diverse skill set, hands-on experience, and a track record of global recognition, we bring a comprehensive approach to content creation and platform development.

Do you possess the necessary skills required to scale up your startup?

Our team possesses the essential skills for scaling, from content creation to strategic partnerships, ensuring continuous improvement and adaptability. Actively seeking new talents for strategic growth, technology scaling, marketing, and operations.

Insights into Product Maturity

Our products, Cosmic Kids Club have strategically evolved to meet user needs and technological advancements. With over 4,000 engaged students, Cosmic Kids Club's beta version showcases early success. CosmicYaan, our school-centric platform, is in final development stages, set for launch in the upcoming academic year. The well-received National Astronomy Challenge enhances overall product maturity,

How are you different and USP?

In a landscape where structured, grade-specific space education is lacking, our platforms provide a DIY environment for schools and home learners, ensuring anytime, anywhere access. This addresses a crucial gap and empowers learners with the flexibility to engage with space education at their own pace and convenience.

How does your business model help you succeed?

Our business model, centered on a DIY and enabler role, prioritizes scalability by continually enhancing technology and content for an interactive and engaging experience. This strategic focus aligns seamlessly with our vision and mission.

Taramandal Technologies Pvt Ltd

Company Name

Taramandal Technologies Pvt Ltd

Founders & Team

1. Vineel Judson
2. D.Rajesh
3. M.Gautam
4. N.Rama Jaya Lakshmi
5. T.Neelakanteswarareddy

Years of Operation and Location

2023, Visakhapatnam, Andhra Pradesh, INDIA

Stage

Prototyping and simulation

Elevator Pitch about the product/service

Taramandal intends to create precise subsystems that will aid in mission success. ADCS is observed as the brain of satellite, allowing it to traverse within the defined orbit under several boundary conditions. Taracon-Neo the new-age ADCS device, which has high endurance, increased reliability, lower power consumption, and perfect accuracy and is compatible for self-de-orbiting mechanism which prevents the satellite from becoming debris and intends to overcome the restrictions. TARACON – Neo reaction time is reduced and the control signal generated is robus t with these algorithms. These algorithms minimize the required controllers and redundant components.

Pain point being solved

TARAMANDAL is focused towards technologies to be implemented in space sector. One of the important observation from the NASA's 2019 report is that 41.3% of small satellite missions launched have experienced total or partial mission failure. Improper functioning of Satellite Control system and deploy mechanism failure. It is intended to create reliable subsystems that improves the mission success rate. Satellite Control system is observed to be the brain of satellite, confirming it to traverse within the designated orbit under specific boundary conditions. Taramandal's TARACON possess enhanced endurance, increased reliability, lower power consumption, increase accuracy to overcome the constraints leading to failure.

Traction

TARAMANDAL stands as a pioneering example, being the first of its kind space startup in Andhra Pradesh. Our efforts have not gone un-noticed, with accolades from prestigious organizations such as IN-SPACE, ISRO, the Australian Space Agency (ASA), the Taiwan Space Agency (TASA), SIA-INDIA, ISPA, and many others. In recognition of our innovative space technologies, we have received numerous awards and acknowledgments. Notably, TARAMANDAL was honoured with the prestigious "Best Emerging Startup of the Year 2023" award from the Headstart Foundation. Furthermore, we proudly announce our partnership with the Paris Peace Forum, making us only the fourth startup from India to work towards achieving a net-zero orbit by 2030, reinforcing our unwavering dedication to sustainability in space.

Market Size (Opportunity) and Trends

The market for ADCS in the satellite industry is experiencing steady growth due to the increasing number of satellites being launched for various purposes, including Earth observation, communication, navigation, and scientific research. The size of the market is influenced by factors such as the expansion of space exploration programs, the deployment of mega-constellations of small satellites, and the rising demand for precise satellite positioning and orientation. As satellite missions became more complex, the need for precise attitude control and determination grew. This drove the demand for advanced ADCS solutions that could ensure satellite stability and pointing accuracy. A notable point is TARAMANDAL provides a custom specified design and development of satellite control system – preparation of control algorithms, controller programming, sensors integration, control signal generation and actuation systems configuration.

Business and Revenue Model, GTM:

1. Development of Orbital Management ADCS/AOCS Methodology or Algorithm:

- Value Proposition: Taramandal offers customized, efficient orbital management solutions for satellite manufacturers. We develop ADCS/AOCS methodologies tailored to each mission's specific needs and create a generalized protocol for future use.
- Revenue Model: Charge a one-time fee for developing the methodology/algorithm and an ongoing maintenance/support fee.
- Additional Services: Offer consulting and training services to help clients implement the methodology effectively.

2. Development of Satellite Control unit:

- Value Proposition: Taramandal specializes in creating satellite control unit that meet the precise requirements of different orbital vehicle classes, ensuring optimal control and performance.
- Revenue Model: Charge a one-time fee for designing and delivering the satellite controller hardware and software.
- Additional Services: Provide ongoing support and updates, especially for evolving satellite technologies.

3. Development of Sensors, Actuators, and Control Systems:

- Value Proposition: Taramandal offers a comprehensive suite of Taracon-Neo, which includes sensors, actuators, and control system, providing a one-stop solution for satellite manufacturers to build their vehicles.
- Revenue Model: Charge for the complete suite of hardware and software components. Consider a combination of one-time fees and subscription-based pricing for continuous support and updates.

Key Competitor

There exists few designers and fabricators of ADCS/AOCS globally, but many of them are providing a fixed configuration without a reasonable flexibility to the user to adopt the system to suit his requirements. TARAMANDAL provides the user a flexible satellite control system wherein the user can select the scheme of sensors and actuators suiting his mission, which is the unique proposition.

Competitive Advantage

There are relatively few existing options on the market, all of which are expensive and low reliability. Taramandal's Taracon-Neo is expected to compete in significant aspects including effective data fusion algorithm, fewer number of components, reduced weight, increased reliability cost effective, occupying low volume, high reaction time and easily customizable.

Funding and Valuation

As of now, Taramandal is bootstrapped and looking for funding opportunities. The needed funds are being supplied by the founders of TARAMANDAL from their previous earnings and savings

Comments on how your team is the best to solve the problem

Having exposure to a wide range of works involving electronics, sensors, actuators and controllers gives the team the confidence to solve the problem. The successful delivery of many of the critical technologies – being first time in India- to many of the national level significant clients boosts up the technological temperament of the founders.

Do you possess the necessary skills required to scale up your startup?

Definitely YES, the foresightedness of the founders along with their technological expertise and critical solving techniques would elevate the startup to an elite level.

Insights into Product Maturity

As the Satellite control system – TARAMANDAL's product is unique and differentiates from its peers in the market and offers complex design challenges to the founders and their technical team. But, it is a more flexible and easy-to-use product for the user. The product is ready with its design scheme, simulation, and pre-fabrication supply chain. Soon the product shall be ready for the user after testing in all aspects.

How are you different?

Taramandal's Taracon-Neo is expected to compete in significant aspects including an effective data fusion algorithm, fewer number of components, reduced weight, increased reliability cost-effectiveness, occupying low volume, high reaction time, and easily customizable.

How does your business model help you succeed?

The unique techno-business model of TARAMANDAL makes the founders sure to succeed. In a way, the flexibility of the entire satellite control system catering the needs of the user member by the tailor made configuration and the few competitors globally makes the founders to reach their business target. The ever-increasing demand for the orbital vehicles would enhance the revenue earnings. The concept of family satellite is another dimension of providing additional revenue at the earliest.

Your USP

Taracon-Neo has its unique proposition at its core providing effective data fusion algorithm, fewer number of components,reduced weight, increased reliability cost effective, occupying low volume, high reaction time and easily customizable.

ATAL INCUBATION CENTER

AIC T-Hub Foundation @aicthub aict-hub.co