सत्यमेव जयते
Education Department
Government of Gujarat

i-Hub
(A Government of Gujarat Initiative)

Application to i-Hub

Startup/ Project / Team Name: The Roar

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Elevator Pitch (Not more than 50-70 words)

In the critical field of boiler, pressure vessel, and storage tank inspection, our cutting-edge Robotic Crawler is a game-changer. It expertly navigates hazardous environments, eradicating risky human entry. Equipped with advanced sensors and precision movement, it maximizes inspection efficiency, minimizes downtime, and ensures comprehensive assessments. As your industry's ultimate ally, our Robotic Crawler sets new benchmarks for safety, quality, and productivity. Bid farewell to manual inspections and welcome an efficient future.

Problem

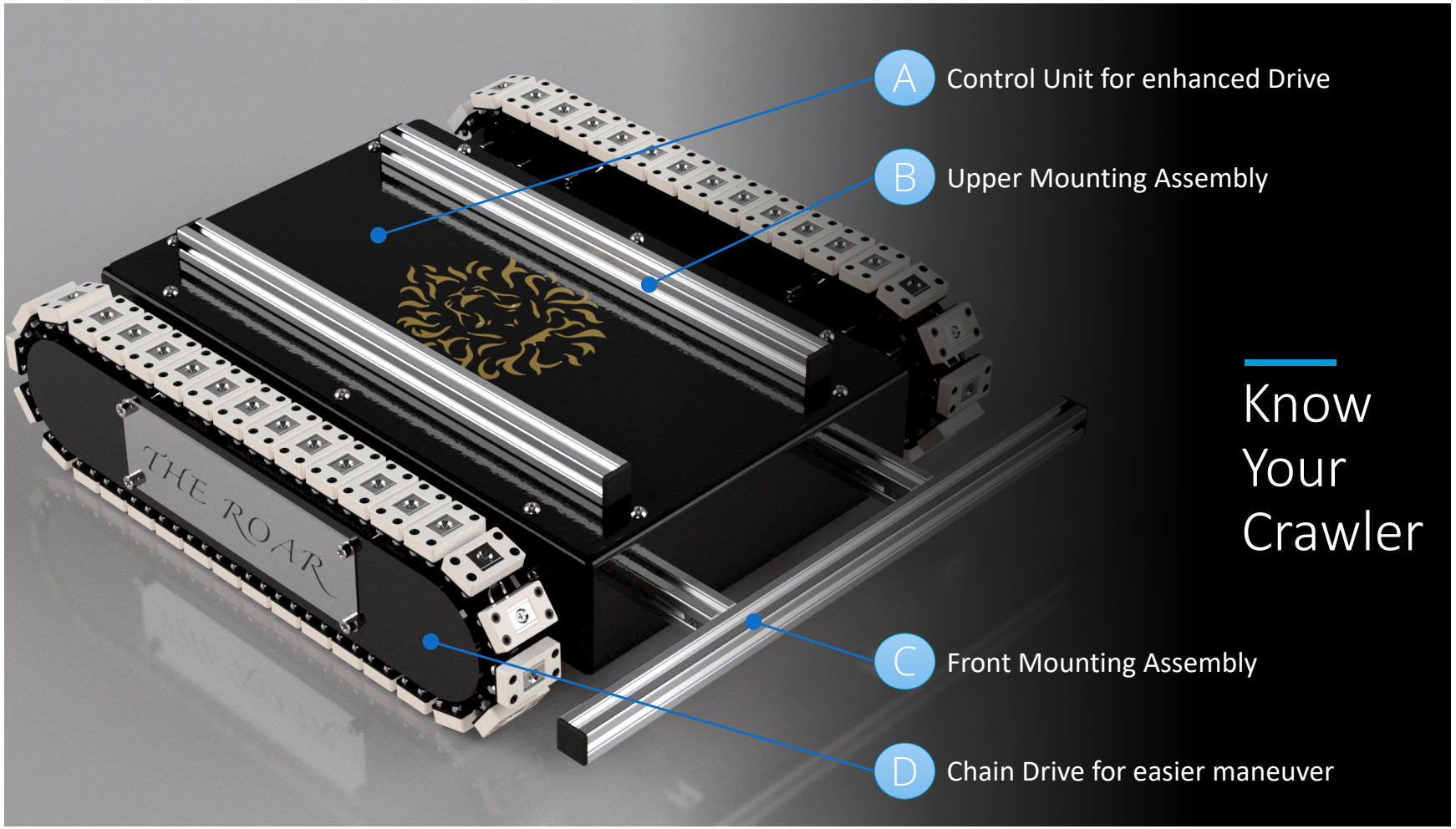
Manual inspection remains a **common practice** for various industries, including boiler inspections. **Human inspectors physically enter the inspection areas and visually examine the equipment or systems**. They rely on their expertise and experience to identify potential issues, defects, or abnormalities.

- It is **Time consuming**, Leading to operational downtime.
- It has **High Risk factor**, as inspectors are exposed to hazardous environment.
- Human entry is limited due to **confined spaces**.
- **Variations** in Inspection result due to human error.
- Manual documentation and reporting can lead to **delayed analysis and decision making**.

Solution

Introducing our autonomous inspection bot, a groundbreaking innovation revolutionizing boiler inspections. It can be equipped with cutting-edge robotics, advanced sensors, and data analysis capabilities, this bot offers unparalleled efficiency and accuracy. By eliminating the need for human entry into hazardous boiler environments, it ensures enhanced safety and mitigates operational risks. Its use brings significant market impact, transforming traditional inspection practices and setting a new standard for the industry. With its ability to navigate confined spaces, capture detailed data, and provide data-driven insights, our autonomous inspection bot empowers businesses to optimize maintenance strategies, reduce downtime, and achieve peak operational performance. Experience the future of boiler inspections today.

Product

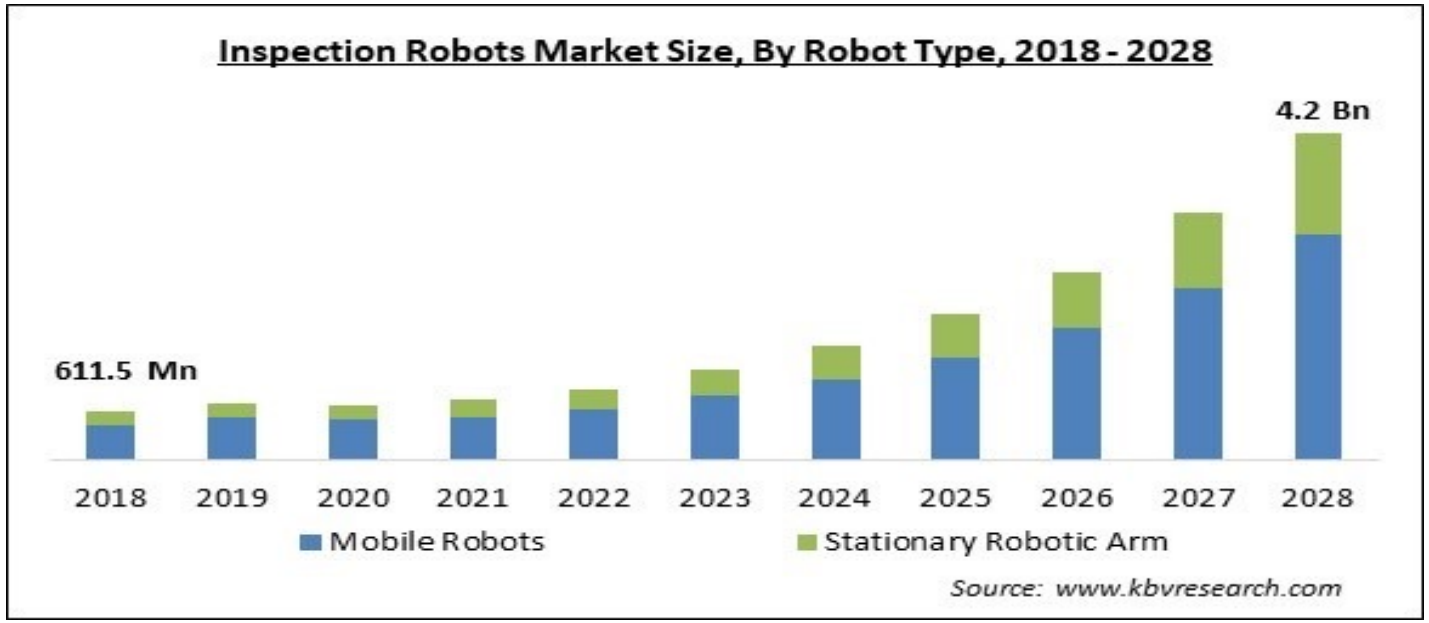


What truly sets our Robotic Crawler apart from the competition is its innovative design. We've meticulously engineered it to excel in any environment, with a dust and waterproof construction ensuring efficiency and reliability. Maintenance is a breeze, and we've introduced replaceable magnetic mounts for adaptability across various scenarios. The addition of upper and front mounting brackets opens up a world of possibilities, allowing for multifunctional applications, from cleaning to inspections. This versatility and user-friendly design redefine the capabilities of robotic inspection.

Unique Selling Proposition

1. Straight Path optimization (Tilt<0.1 Deg)
2. Speed (0.14 m/s)
3. Tele-Operated
4. Payload Carrying (40 KG)

Market Opportunity



Inspection Robot market size is growing at a rate of **CAGR 29%** (calculated from 2022 to 2028) globally.

According to a research, the global industrial boiler market was valued at USD 12.8 billion in 2018 and is expected to reach USD 20 billion by the year 2026, at a CAGR of 5.8%.

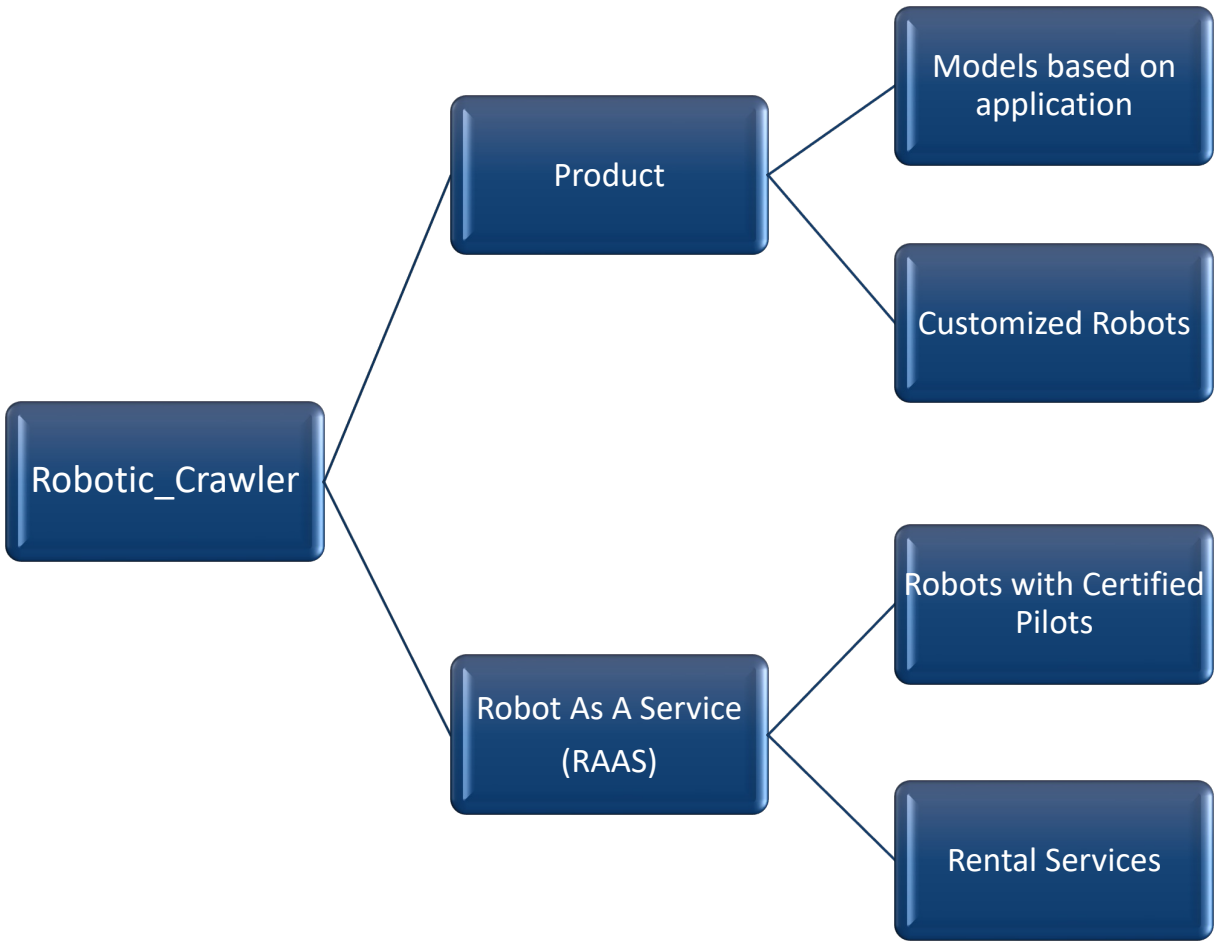
The Asia-Pacific is expected to account for about 40% of the global industrial boiler market, holding the highest growth rate compared to various other boiler markets. India is expected to be a key driver of growth in Asia with highly potential consumer industries and the globally acclaimed 'Make in India' program for the manufacturing sector.

Indeed, our market is intricately linked to the Indian boiler and pressure vessel industry. As this sector expands, the demand for inspections will rise in tandem. The advent of Industry 5.0 and the requirement for collaborative robots (Cobots) are poised to become the norm. Companies seeking technological advancements will naturally turn to our innovative solutions, aligning perfectly with their evolving needs. The growth of this industry is a promising gateway to a brighter future for our technology.

Competitors and Competitive Advantage

- In our country, prevailing practices rely heavily on manual inspections. Our mission is to introduce robotic solutions that not only enhance safety and efficiency but also offer a compelling return on investment. The beauty of our solution lies in its scalability – it can be readily replicated. We're incorporating IP-based technology, and our pricing strategy will be the defining factor that sets us apart, making it challenging for competitors to match our offering.
- At The Roar, our latest innovation, the Robotic Crawler, places us at the vanguard of the industry. While we acknowledge Petrobot's inspection expertise and GridBot's robotics renown, we've carved our niche by blending inspection proficiency with cutting-edge robotics. The Robotic Crawler represents a superior solution, boasting innovation, competitive pricing, and an unmatched inspection experience. Our Robot as a Service (RaaS) model positions us for exponential growth, offering our clients an advanced and cost-effective way to access our cutting-edge technology. We're primed to lead the pack in this dynamic and competitive landscape.

Business Model



We also develop Robotic Crawler as a standalone product for companies with substantial investment capacities. Our product offering prioritizes exceptional quality, incorporating state-of-the-art features and customization options.

We also develop Robotic Crawler as a standalone product for company's specific needs in non-destructive testing (NDT). We strive to deliver a superior product experience and address any client needs or challenges that may arise.

We aim to collaborate with inspection firms seeking to enhance their inspection processes, offering them access to our cutting-edge robot technology. Under the RaaS model, we provide our inspection robot, along with a certified pilot, on a chargeable service basis. This allows inspection firms to leverage the capabilities of our robot *without the need for significant upfront investment or specialized training.*

Furthermore, we offer the option of renting our robot to inspection firms that already have certified pilots, enabling them to utilize our technology as per their specific requirements.

Business Model Canvas

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BUSINESS MODEL CANVAS

Key Partners

1.Boiler manufacturers: Collaborate with manufacturers to understand boiler specifications and requirements for inspection.
2.Industrial maintenance companies: Form partnerships with maintenance firms to offer the robot as a service to their clients.
3.Robotics technology providers: Partner with companies specializing in robotics to leverage their expertise and access to advanced technologies.
4.Regulatory bodies: Collaborate with regulatory agencies to ensure compliance with safety standards and regulations.

Key Activities

1.Research and development: Continuously improve the robot's design, functionality, and inspection capabilities.
2.Manufacturing and assembly: Produce the robot units and ensure their quality and reliability.
3.Marketing and sales: Promote the robot's benefits and capabilities to potential customers.
4.Maintenance and support: Provide ongoing technical support, upgrades, and maintenance services for the robot.

Key Resources

1.Technical expertise: Employ engineers and technicians with knowledge in robotics, automation, and boiler systems.
2.Manufacturing facilities: Establish production facilities equipped with necessary tools and machinery.
3.Intellectual property: Protect and leverage any patents or proprietary technologies related to the robot.
4.Financial resources: Secure funding for research, development, manufacturing, and marketing activities.

Value Proposition

1.Improved safety: Reduce the risk of human inspectors being exposed to hazardous boiler environments.
2.Time and cost savings: Increase inspection efficiency and minimize downtime for boiler maintenance.
3.Enhanced accuracy: Provide precise and detailed inspection reports to identify potential issues.
4.Scalability: Enable simultaneous inspections across multiple boilers with a fleet of robots.

Customer Relationships

1.Personalized customer support: Provide technical assistance, training, and ongoing support for the robot's operation.
2.Feedback and collaboration: Engage with customers to gather feedback, improve the robot's features, and address specific needs.
3.Long-term partnerships: Build strong relationships with customers to encourage repeat business and future collaboration.

Channels

1.Direct sales: Reach out to potential customers through sales teams, industry events, and trade shows.
2.Online platforms: Utilize a website and online marketing strategies to showcase the robot's features and benefits.
3.Partnerships: Collaborate with maintenance companies to leverage their existing networks and customer base.

Customer Segments

1.Industrial facilities: Target large-scale manufacturing plants, power plants, refineries, and other facilities with boiler systems.
2.Maintenance companies: Cater to businesses that outsource their boiler maintenance to specialized firms.
3.Regulatory agencies: Offer a solution that helps regulatory bodies monitor and ensure compliance with safety standards.

Cost Structure

1.Research and development: Allocate resources for continuous improvement and innovation.
2.Manufacturing and production: Cover the costs associated with the production, assembly, and quality control of the robots.
3.Marketing and sales: Budget for marketing campaigns, sales teams, and promotional materials.
4.Support and maintenance: Invest in customer support, technical assistance, and maintenance services.
5.Operational costs: Account for facilities, utilities, employee salaries, and administrative expenses.

Revenue Streams

1.Robot sales: Generate revenue by selling the boiler inspection robots to industrial facilities and maintenance companies.
2.Service contracts: Offer maintenance contracts and subscription plans for ongoing support, upgrades, and access to new features.
3.Licensing: Explore the possibility of licensing the technology to other companies or entering into technology transfer agreements

Your Expectations from i-Hub

1. Funding Support
2. Networking Support
3. Mentoring Services
4. Facilities: Space, Internet, Labs etc

Team

Anmol Shah

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Anil Maity

in