QRobot

-- Equip robots for quality

Companies: Risk driven Quality Consulting Company LLC (RdQCC)

Global Risk Data Inc (GRD)

Founder: Jerry (JinXing) Xiao

Dec 10th, 2024

Problem Statement

- High Volume Product Recalls and impacted Units in USA (2023)

  for consumer products, 322 recall events, impacting approximately 135.2 million units; for medical devices, 975 recall events, affecting 283,44 million units *(source: PR Newswire).*

- Serious Product-related Incidents in USA (2023)

  approximately 12.7 million individuals were treated in emergency departments for injuries and over 700 deaths due to consumer product incidents (*Source: Stein Whatley*).

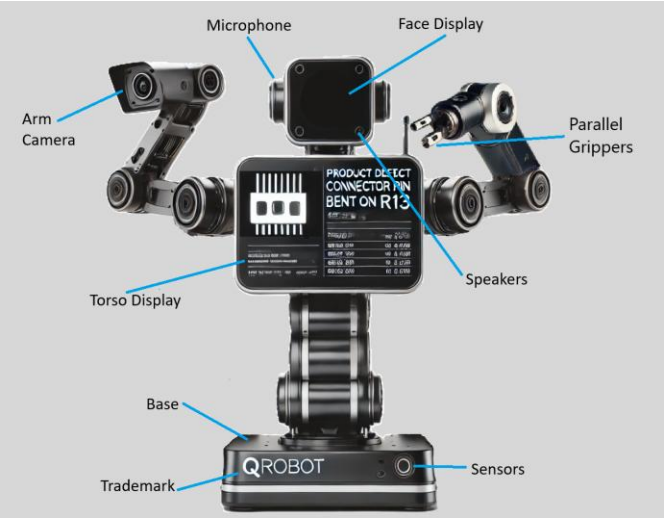
  The FDA receives over two million reports annually of suspected device-associated deaths, injuries, and malfunctions. From July 1 to September 30, 2023, FDA received over 7,000 reports related to Philips ventilators including 111 patient deaths. (*Source: Fierce Biotech*).

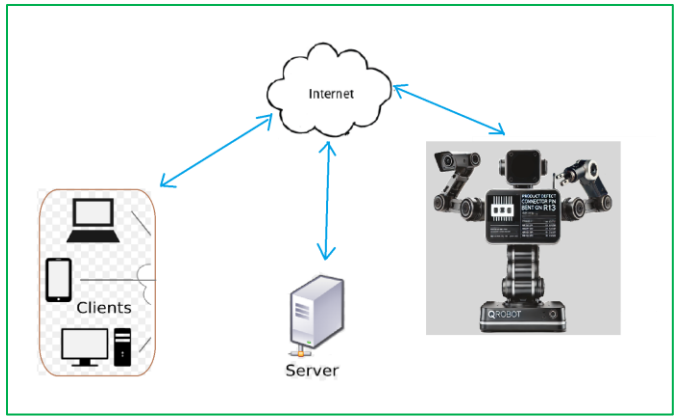
- High Product Inspection Costs and Investment

  The cost of quality consists of prevention, appraisal, and failure costs, accounts for up to 25% of sales for some firms and can reach 40% to 50% in certain cases.

  Most automated inspection systems using measurement approach are limited to isolated checkpoints, unable to identify defects out of these checkpoints such as during material transmission, rework, reinspection, or refurbishment. A mid-level system typically ranges from $50,000 to $150,000. Those systems are limited to a few checkpoints and are often unaffordable for small manufacturing companies or those with low-volume production needs.

Our Solution: QRobot





The **QRobot** system minimizes quality inspection costs (as low as $0.6/hour) and investment through a subscription model. It seamlessly and consistently detects product defects and non-conformance issues across production floors, enabling risk-based decision making for defect disposition, leveraging proprietary AI models and advanced robotic technologies.

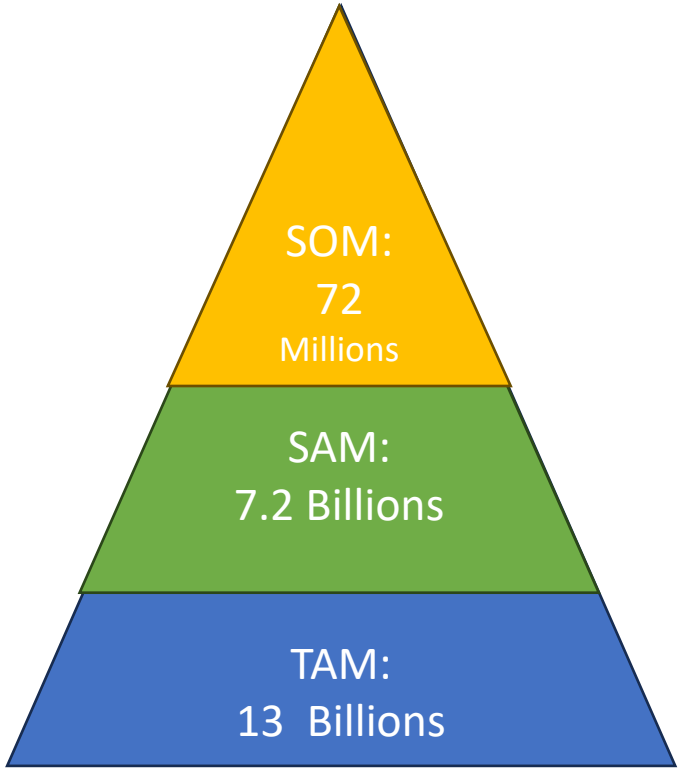
- Achieving Maximum Efficiency at Minimum Cost
- One QRobot for All

  detect a wide range of defect scales and types.
- Custom AI Bimodal Models

  built on proprietary Image-RiskNet datasets to identify product defects efficiently and accurately using large language models.
- Mitigate Product defects from Root Causes

  deliver insights into failure modes, hazard, hazard situation, failure causes, risk level, mitigation strategies, and enable risk-based decision making.

Market Opportunity



- Market Size

The U.S. has over 600,000 manufacturing facilities across various sectors, including machinery (19,873), automotive (300), food processing (27,000), chemicals (3,430), electronics and semiconductors (2,031), medical devices (7,900), pharmaceutical and biotech (5,200), renewable energy and clean technology, etc.

Manufacturers represent direct users of the QRobot system, with a global count exceed 1,100,000 facilities.

- Growth Trends
  - The automated optical inspection system is projected to growth at a CAGR of 20.8% from 2021 to 2026 (*marketsandmarkets*)
  - The global robotics market is growing at compound annual growth rate (CAGR) of 12.17% *(Mordor Intelligence*)
  - In the industry 4.0 age, automating anomaly detection takes the guesswork out of condition monitoring.

QRobot: Next-Generation Quality Control Solution

- Product Overview

The QRobot is designed to automate quality control in manufacturing, minimizing costs and maximizing efficiency. By leveraging AI-driven robotic technologies, it identifies defects across production lines while providing real-time risk analysis and actionable insights.

- Technology and Innovation
  - **Proprietary AI Models**: Our AI models are trained on proprietary datasets, enabling QRobot to recognize product defects with exceptional accuracy and conduct detailed risk analysis to support decision-making.
  - **Advanced Robotics**: Equipped with state-of-the-art cameras, motion planning systems, and wireless communication technology, QRobot adapts seamlessly to both high-volume and small-batch production environments.
  - **Transform quality inspection to next generation**: seamlessly transform quality control from isolated checkpoints to full production line solution, leveraging the full potential of industry 4.0.
- Competitive advantage

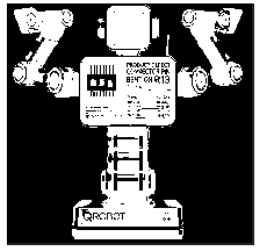
Unlike traditional automated inspection systems, QRobot offers a flexible subscription model, drastically lowering the cost of entry. Additionally, its “one QRobot for all” enables to detect a wide range of non-conforming issues across manufacturing floors than competitors on specific defects.

QRobot Core: RiskNet Dataset and Its AI Models

Evolution of RiskNet Dataset Family:

Video-RiskNet
(Status: planning
Start: 2026)

Role: Auditor
GDP, GMP, Regulation
Product: QRobot



Videos,
Documentations

Image-RiskNet
(Status: In process
Start: 2024)

Role: Quality Inspectors
Application: detect product defects, non-conforming materials, issues.
Products: QRobot, Defect-AI

Defect Image Lab

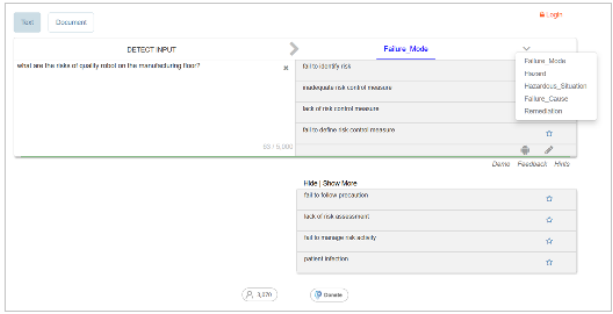
Text-RiskNet:
(Status: built
Start: 2021)

Role: Risk Management Engineer,
Quality Assurance Engineer

Dataset: over 13,000 failure modes and large training data

Application: identify potential risks during new product development.

Products: www.risk-chat.com



QRobot Traction

- Key Milestones:
  - **Proprietary AI text Models**: Upgrade to Revision 12 since their launched in 2021. Platforms www.risk-discovery.com and www.risk-chat.com now serve over 3000 users worldwide.
  - **Proprietary AI image Models**: Established a defect image center in 2024 to continuously produce high-quality product defect images and captioned risk analysis data. Fine-tuned models using large language models (LLMs) and successfully tested within the QRobot protocol.
  - **QRobot Progress**: The QRobot hardware partner has been finalized. The development strategy involves upgrading their existing candidate robot and integrating it with our AI models. A demo is scheduled for May 2025.
- Media Coverage and Industry Recognition

  Named one of the “Top 50 Innovative Companies to Watch” by *the silicon review* in 2023, one of the “Top 10 Smart Medical Device Solutions and Impacting the Industry” by *MED TECH* in 2021.
- Partnerships & Collaborations

  Established a partnership with Concordia University (ranking second in Canada for AI-related publications) through the NSERC (Natural Sciences and Engineering Research Council of Canada) grant program.

Business Model

- Revenue Model:

  QRobot operates on a RaaS (Robots-as-a-Service) model, offering as an all-inclusive package (robot, software, proprietary AI models, accessories, services).

- Pricing Structure:

  Monthly subscription fee of $1,000 per robot (equivalent to $0.6 per hour), significantly reducing upfront costs compared to conventional automated inspection systems priced at $100,000 and manual inspection at $20 per hour.

- Key Customers:

  Manufacturers in high-volume and small-batch production industries, seeking cost-effective quality control solutions.

- Distribution Channels:

  Direct partnerships with manufacturers and collaborations with academic institutions like Concordia University to drive adoption.

- Scalability:

  The model supports deployment across manufacturing floors, allowing customers to expand usage in the new area seamlessly while further reducing per-product inspection costs.

Competitive Analysis

Criteria	QRobot	Traditional Automated Inspection Systems	Manual Inspection
Cost	$1,000/month subscription ($0.6/hour)	$100,000 upfront investment	High labor costs ($20/hour)
Deployment Flexibility	Inspect all sides of a product and across production lines	Limited to specific side of a product and production line	Flexible but slow
Defect Reasoning	Deep defect reasoning and risk-based decision making powered by proprietary AI models using LLM	Limited reasoning using measurement approach and no capability for risk analysis	Inconsistent and no capability for risk analysis
Scalability	Easily scalable via RaaS	Requires substantial reinvestment and comprehensive measurement system setup	Difficult to scale
Ease of Use	Intuitive setup and operation	Requires technical expertise	Moderate

Summary: QRobot offers a cost-effective, scalable, and highly accurate solution compared to traditional automated inspection systems and manual inspection methods. It utilizes advanced AI-driven robotic technologies, comprehensive product risk analysis, and a flexible Robots-as-a-Service (RaaS) model, making it accessible to business of all sizes.

Go-To-Market Strategy

- Customer Acquisition Channels:

  Digital marketing campaigns through linkedin and Google Ads targeting production managers and quality supervisors. Attendance at industry conferences like Automate, ASQ, and IMTs to demonstrate QRobot’s capabilities.

- Value Proposition Messaging:

  Revolutionize quality inspection with QRobot: an affordable, scalable, and accurate solution, leveraging AI-driven robotic technologies.

- Distribution Strategy:

  QRobot services are sold directly to end-users, ensuring comprehensive support with installation and ongoing maintenance.

- Metrics for Success:

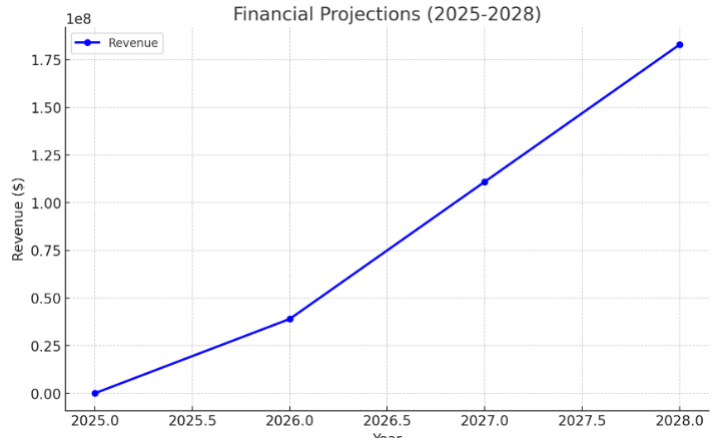
  Achieve 10 pilot customers by mid-2025, with QRobot production scheduled to commence at the start of 2026.

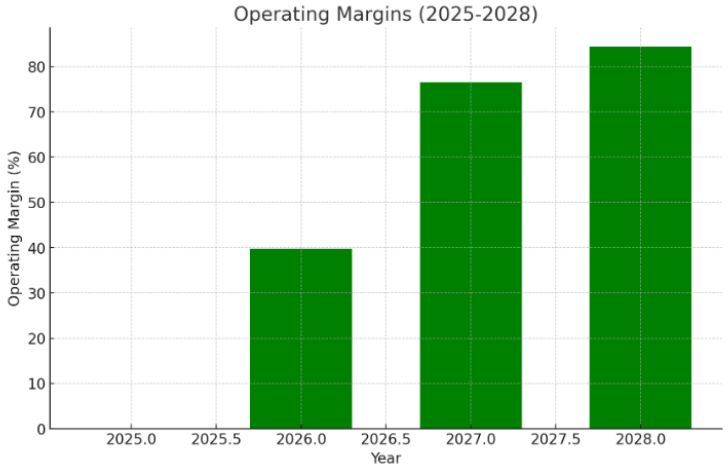
Team

- Leadership Team:
  - **Jerry Xiao**, CEO: with over 20 years of consulting experience, Jerry has investigated more than 200,000 product failure issues and conducted detailed risk analysis across over 100 product categories including FDA approved robotic surgery systems and AI-powered medical devices.
  - **Shahar Tsadeek**, Chief Data Scientist (CDS): Spearheaded the company's machine learning, data modeling, App development over the past five years.
  - **Qing He**, CTO: Brings three robotic surgical experience (FDA approved) in hardware design and robotic development from initial concept through production.
- Diverse Expertise:

  Combined experiences in AI, Robotics, Risk Management, and Quality Control.
- Advisory Board:
  - **Yulun Wang, PhD**: Dr. Wang is the Founder and President of Intouch Health and Co-Founder of Computer Motion, the precursor to Intuitive Surgical.
  - **Robert de Monts**: An experienced professional in startup development, fundraising, operations, and market strategy. He held roles such as CEO, COO, executive advisor, VP in various domains. Holds a Master of Science from MIT and serves as a reviewer for the *MIT Review*.

Financial Projections





- Revenue Growth:
  - Initial investment phase in 2015 to support R&D and pilot deployment.
  - Rapid scale-up in 2026 with 6,000 services sold, generate $39M in revenue.
  - Strong growth trajectory reaching $183M revenue by 2026 with 18,000 services sold.
- Profitability Milestones:
  - Achieving profitability in 2026 with $18.6M in net positive cash flow.
  - Profit margin expands from 39.7% in 2026 to 84.2% in 2028.
- Unit Economics:
  - Revenue per robot service: $12k/year
  - Rough material cost per robot: $3K and total cost per robot: $5K.

Investment Opportunity

- Capital Request:
  Seeking **$10M** in Series A funding to accelerate product development, manufacturing scaling, and go-to-market initiatives.
- Pre-money valuation:
  $50M, with equity offer of 16.6% for this round of funding.
- Use of Funds:
  - 60% allocated for product development, supporting a team of approximately 40 professionals.
  - 20% dedicated to AI image models and refining robot prototype iterations.
  - 15% earmarked for scaling manufacturing operations and covering operational costs.
  - 5% reserved for business development, marketing and sales efforts.
- Investment Rationale:
  QRobot is positioned in a fast-growing AI robotics market with a scalable subscription model. With proven team expertise, strong industry recognition, and proprietary AI models, we are posed for rapid market adoption and growth.
- Expected ROI:
  Targeted 15x return on investment within 4 years based on profitability by 2028

Thank you –
Partner with Us to Transform Quality Inspection

QROBOT

RDQCC

Building Devices Together

- Revolutionizing Quality Control by transitioning to full integrated production lines.
- Proven risk reasoning engines and proprietary AI bimodal models with strong initial traction.
- Addressing a $13B+ TAM with a scalable subscription model.
- Contact Information:

Jerry Xiao, CEO & founder

Email: jxiao@rdpdm.com | Phone: +1 (515) 657-2476

Website: www.rdqcc.com

Let's shape the future of quality control together. Schedule a follow-up meeting to discuss investment opportunities.