Winning the Robotics Race

How pre-built platforms turbocharge startups' growth

**PICKNIK**

Welcome to the Robotics Startup Renaissance

After a post-pandemic downturn, we've entered a new era for robotic startups, a time filled with explosive innovation and breakthrough potential. The momentum is undeniable: robotic startups received $4.2 billion in funding in the first half of 2024 alone and more funding in the first eight months of 2024 than in all of 2023. Combine that growth with overall industry growth — the value of the robotics industry is expected to reach $169.8 billion by 2032, which is more than three times higher than 2023, fueled by an expansion of new use cases across agriculture, healthcare, retail, customer service, and more.

Factories around the world are populated with more robots than ever, but this technology is no longer limited to manufacturing. The AI revolution has ushered in unprecedented automation possibilities, and organizations and investors alike are especially interested in how AI and robotics can work together in innovative new ways. The coming tidal wave of automation will be powered by intelligent software that automates complex tasks such as assembly, cleaning, and harvesting in unstructured environments, meaning those that are dynamic and unpredictable without predefined or fixed layouts.

70%+
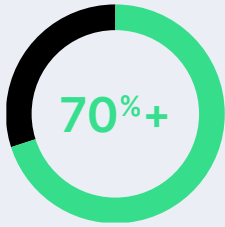
Over 70% of workers trust AI to bring value to their work processes

80%
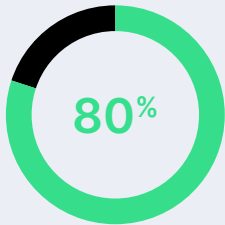
80% of senior employees believe AI will prove its business impact within two years

AI's Role as a Robotics Tailwind

AI is a driving force that is reshaping businesses, and it has also become a tailwind for robotics startups. Why? In two words: broad understanding. The majority of organizations not only understand what AI can do, but have also adopted it. Over 70% of workers trust AI to bring value to their work processes, and 80% of senior employees believe AI will prove its business impact within two years. This understanding makes it easier for organizations to envision how AI supercharges robotic manipulation capabilities.

Thanks to AI, robots are learning faster, leveraging computer vision, recognizing objects with precision, executing dynamic paths, and performing multi-step manipulation tasks in the most unstructured of environments. With AI, robots can understand and make decisions about their surroundings, perform intricate tasks, and spot minute details. Complex tasks like adapting to objects with irregular shapes (dynamic grasping), identifying and categorizing objects in cluttered environments (scene segmentation), and automating multi-step processes without human intervention (task planning) are not just possible, but are happening with capability, accuracy, and consistency that's often better than the humans around them.

There's Never Been a Better Time to Turn Unstructured Robotics Into Your Competitive Edge

Unstructured robotics is the frontier where robotic startups can truly differentiate. Much like Airbnb disrupted hospitality by unlocking the potential of diverse, unstructured spaces, your startup can stake its claim as a pioneer in diverse, unstructured robotics use cases.

> **As advanced as they can be, though, robots are only as strong as the software powering them. How you choose to develop yours is a critical decision.**

Build vs. Buy

Build vs. Buy: Which is Right for Your Startup?

One of the biggest challenges in unstructured robotics is the steep research and development (R&D) curve. Building a bespoke robotic system from scratch demands significant investment in both time and capital, which delays your ability to demonstrate value. Years in development and millions in research and development costs are the norm, not the exception.

That pace doesn't cut it in the startup world. To outpace competitors, you need to streamline development while maintaining flexibility and precision.

Unstructured robotics is a fast-moving field, and the startups that succeed will be those who embrace innovation and iteration. Being ahead of the curve comes with tremendous power:

First-mover advantage

By entering new markets ahead of competitors, you can establish partnerships, secure funding, and capture customer loyalty.

Learning curve mastery

Early adoption allows your team to gain critical expertise, positioning your startup as the go-to provider for challenging applications.

Market differentiation

Being one of the first in the unstructured market positions your startup as a leader in next-generation robotics.

Accelerate Development Without Reinventing the Wheel

In your efforts to get ahead of the curve, should you buy a pre-existing robotics software platform or build your own? While building may inherently feel like the best way to exercise full control and specificity, low-code robotics software platforms with pre-trained AI models, simulation tools, and drag and drop interfaces enable rapid development without sacrificing flexibility or precision.

Pre-built platforms give robotic startups 10 game-changing advantages:

1. **Faster time-to-market:** Pre-trained models and AI frameworks dramatically decrease the time required to implement robust capabilities.

2. **Lower R&D costs:** The combination of low code and reusable components reduce the need for expensive, high-risk R&D.

3. **Fast flexibility:** Drag and drop platforms allow for customizations and additions, both of which are faster than building from the ground up.

4. **Lower operational costs:** With the right platform, startups don't have to absorb the cost of a full-time in-house team. These teams are incredibly expensive, plus they are hard to find because robotics development requires experts who bridge mechanical engineering, AI, and software development.

5. **Faster product validation:** Because they come with simulation tools, proven platforms can outpace hardware readiness and accelerate the design process.

6. **Ultimate scalability:** As unstructured robotics becomes a competitive battleground, customers will increasingly demand flexibility, adaptability, and scalability. Low-code, drag and drop platforms are built with scale in mind, meaning your startup can grow and adapt quickly to market changes without worrying about reengineering your infrastructure.

7. **Regulatory confidence:** Commercial-grade platforms go through rigorous testing to ensure they meet regulatory and compliance standards.

8. **Better reliability:** Commercial-grade software platforms come with long-tail reliability, maintenance, and security.

9. **Laser focus:** With the software taken care of, startups can remain focused on the business solution and what they do best, instead of trying to develop new technologies.

10. **Continuous innovation:** A developer-friendly, low-code, drag and drop platform makes it fast and easy to create a continuous stream of new, innovative solutions that augment your competitive edge.

Robotic startups have a clear mission: innovate quickly, adapt to change, and capture market opportunities. How can your startup fast-track the path to market? Learn from HiveBotics, which dramatically accelerated time to market to bring novel robotics to unstructured environments. Read on for an inside look at their strategy.

HIVEBOTICS

The 10 Month Leap

HiveBotics' Story of Speed, Precision, and Global Recognition

HiveBotics' mission is bold: redefine the next 100 years of work. Their journey began with Abluo, an autonomous commercial cleaning robot to handle the most essential cleaning tasks with precision, including advanced disinfection, debris removal, and drying. However, after drawing up the initial concept, HiveBotics realized a major obstacle — navigating public bathroom layouts, not only the base AMR, but also the reachability in and around toilets. Planning consistent and intuitive motions is a common challenge, and inconsistent placement of the robot's mobile base in bathrooms stalled complicated cleaning processes. With an eager customer waiting to pilot Abluo and time ticking, HiveBotics needed robust software that could be deployed fast and effectively.

How It Came to Life

Enter MoveIt Pro, a motion planning and runtime development platform that became HiveBotics' launch pad. MoveIt Pro's off-the-shelf behaviors and capabilities allowed HiveBotics to bypass extensive development, needing only simple customizations and the addition of autonomous navigation software to move seamlessly around even the most confined restroom layouts. Further, by testing and refining the robot's behavior in real-time virtual simulations, HiveBotics saved months of physical prototyping.

The Impact

A project like this typically takes well more than a year to complete, but HiveBotics saved 10 months of product development and testing time. Abluo has since captured global attention, including seed funding and a grant from the National University of Singapore's Graduate Research Innovation Program.

RESULTS

- Accelerated go-to-market: Saved 10 months of development and testing time
- Business growth
- A vote of confidence
- Seed funding in October 2024
- Grant from the National University of Singapore

Gain Speed and Scale Through the Power of Platforms

Startups thrive in a culture of speed and agility, and HiveBotics' success underscores the critical role robotics software platforms play in augmenting those essential characteristics.

Leveraging a proven robotics software platform not only accelerates development with comprehensive, out-of-the-box capabilities but also allows for seamless customizations when necessary. These platforms empower robotics startups to focus on their core strengths, allowing them to reduce operational costs, keep headcount lean, and adapt quickly to market demands. When agility is paramount, these platforms are a key driver of competitive edge and sustainable growth.

PickNik pushes the boundaries of what's possible in unstructured robotics. Our platform, MoveIt Pro, accelerates robotics automation, helping companies deliver unstructured robotics solutions to optimize operations, foster efficiency, and innovate faster. We simplify the complexities of developing robotics applications, making these solutions accessible to, and scalable for, organizations that want to lead in their industries through advanced automation. Our strategic guidance, development platform, and commercial-grade run time software make your automation concepts a reality, across industries and use cases.

PickNik's vision is a world where robotics automation is used by every organization, making them more agile and efficient. No matter where you are in the design and development process, let's talk about bringing your robotics vision to life.

Request a Demo

Sources

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