

# Intelligent Software Powering Warehouse Robots

*Commerce in the digital age requires sophisticated software to increase efficiency, safety, and speed in warehouse environments.*



## SITUATION

Industry-leading warehouse automation company with ambitious project timelines was facing considerable challenges to scale a current system by an order of magnitude. The original system was not designed to handle such a significant increase in scale, which posed numerous technical difficulties. Additionally, organizational growth caused bandwidth issues at the technical management level, leading to bottlenecks in the integration process between dependencies.

To ensure the timely delivery of the project and achieve project milestones, MedAcuity, a software engineering firm specializing in algorithm development, Windows Microservices migration, and test automation, was enlisted as a collaborative partner. With MedAcuity's help, the combined team was able to successfully scale the system to the required order of magnitude while developing their new physical warehouse designs.

## CHALLENGE

- For the new release, the system needed to be redesigned and rearchitected to meet an increased level of warehouse robot traffic and logistics by 4X
- Incomplete, outdated, or unavailable documentation within the mobile robot tasking and routing team – software design, system design and process – prevented active knowledge sharing among team members, also making it difficult to track all aspects of the applications being developed and maintain optimal development velocity
- Agile scrum methodology and continuous integration practices not adopted contributing to unclear understanding of when the work would be complete; and, schedules of completion were being adjusted constantly
- Siloed team environment contributing to poor communication, reduced productivity, redundancies or rework and reduced trust among the various stakeholders
- With every new software update or new code deployment, bugs were reported regularly and required a task team to triage in-field issues
- There was a dire need to improve test coverage and accuracy pre-release to meet deadlines and reduce in-field issues post-deployment

## SOLUTION

- MedAcuity engineers led development activities with direct input on the software design
- MedAcuity created a documentation repository to facilitate collective knowledge sharing across the multiple teams while also improving the quality of the software development process and accelerating technical ramp-up
- With input from key management and director-level stakeholders, a MedAcuity Project Manager created a Jira board summarizing all activities – in progress, completed, and at risk with a prioritization scale (high, medium, low)
- By creating a test automation framework, we helped the client move away from dependencies on manual testing to automated testing helping to accelerate their test efforts and accuracy

## RESULTS

With added expertise from MedAcuity, new optimized software to meet the required 4x scaling criteria was delivered. The introduction of an Agile scrum process improved team collaboration, resulting in a unified development effort that made up for lost time and got the project back on track. The utilization of the established Jira board improved reporting accuracy related to predictability of project completion. The dashboard also increased visibility into all aspects of the project, further enhancing collaboration among team members. The successful transfer of knowledge regarding software engineering best practices for development and testing will be instrumental in improving and strengthening the internal team's capabilities going forward.

Furthermore, the team achieved a **90% pass rate** using test automation - the highest in the company's history. The team of eight MedAcuity software engineers and a dedicated project manager worked seamlessly in a hybrid model, on-site at the client's office and on-call as needed to triage field integration issues.

Accelerating the pace of innovation while reducing development time and risk.

**It's possible. Ask us how. 866.376.1931**

### ABOUT MEDACUITY

MedAcuity, a software engineering firm, partners with companies to address the business and technical challenges inherent in developing complex software-intensive solutions. Offering a combination of strategic consulting services focused on aligning product technology strategy with business goals and full lifecycle software development expertise, we accelerate the pace of innovation for leading companies and innovators in the MedTech, Life Sciences and Robotics industries. With over a decade of experience in software design and development methodologies for highly regulated and compliance-driven environments, our technical capabilities span all levels of software from embedded systems to mobile devices, the cloud and enterprise technologies.