

From Selenium to Cypress: Revolutionizing Testing Practices at AutoDesk's PlanGrid

PlanGrid, an AutoDesk company, offers innovative construction productivity software, facilitating collaboration among contractors and owners across various industries. With a user base exceeding 2 million projects, PlanGrid's Automation Platform team, established in 2018, is tasked with ensuring the availability of mission-critical services worldwide. The team of six engineers supports automation frameworks and manages pipeline integrations across multiple platforms, including Android, iOS, Windows, web applications, and the company's backend.

Challenge

Initially, PlanGrid faced challenges with its testing infrastructure. The existing Selenium-based framework comprised approximately 50 tests, primarily owned and maintained by the QA team. However, the tests were disorganized, leading to developers skipping them, particularly if debugging proved challenging. As PlanGrid's user base expanded, it became evident that maintaining a high level of quality across the system was imperative. A new testing culture was required to address these issues.

Solution

PlanGrid's Automation Platform team embarked on a mission to create a more efficient testing framework aimed at elevating quality standards while streamlining maintenance tasks. In pursuit of this goal, they delineated several pivotal objectives for the new testing tool: providing developers with the autonomy to select the most suitable tool for their tasks, fostering a culture centered on intelligent and efficient testing methodologies, expediting the detection and rectification of malfunctioning features, alleviating the maintenance workload to stimulate innovation, and empowering developers to efficiently debug, monitor, and take ownership of their tests. This concerted effort aimed to revolutionize PlanGrid's testing infrastructure and instill a culture of quality assurance throughout the development process.

430k

automated tests conducted monthly

75%

reduction in test run times from parallelization

20+

custom commands created for testing efficiency

“The Automation Platform team’s role is to enable testing speed and efficiency, without being responsible for writing the tests,” says Prakash Patel, Senior Manager, SDET at AutoDesk. “Onboarding onto test tools and figuring out how to write good tests can be time consuming and we wanted to remove that barrier from the dev teams.”

To meet these objectives, the team sought a testing framework that met specific criteria:

- JavaScript-based language for tests
- Easy-to-write and maintain tests
- Fast test execution
- Effective debugging capabilities
- Seamless integration with continuous integration (CI) systems

After careful evaluation, the team selected Cypress as the preferred testing tool. Cypress’s features aligned well with PlanGrid’s requirements, offering a JavaScript-based testing environment with streamlined test writing, fast execution, and robust debugging capabilities. Moreover, Cypress integrated seamlessly with PlanGrid’s CI infrastructure, enhancing overall efficiency.

Result

Implementing Cypress revolutionized PlanGrid’s testing practices, enabling the Automation Platform team to promote quality and share best practices across development teams effectively. Cypress tests now validate application functionality across multiple services, supporting PlanGrid’s microservice-based architecture. The team developed an internal library for sharing custom Cypress commands and integrations, fostering consistency and minimizing overhead for development teams.

Cypress’s intuitive debugging features empowered developers to fix their own tests efficiently, freeing up the Automation Platform team to focus on enhancing the testing library. As a result, developers shifted their mindset, viewing test code with the same importance as production code, leading to a substantial improvement in quality.

“Once people started seeing the DOM state snapshotting, tests running in real-time, and easy debugging, that was a huge win,” says Patel. “Writing tests in Cypress felt very familiar to front-end developers who are used to unit testing.”

By adopting Cypress, PlanGrid successfully overcame testing challenges, fostering a culture of quality assurance and continuous improvement across its development ecosystem.

“ Writing tests in Cypress felt very familiar to front-end developers who are used to unit testing.”

—Prakash Patel, Senior Manager, SDET, AutoDesk