

PRODUCTION PLANNING SOFTWARE



Mastery in
Software
Engineering



Key Facts

-  Industry: Industrial Manufacturing
-  Team Size: 6 People
-  Duration: 7+ Years (ongoing)
-  Technologies:
 - C++, Qt framework/QML,
 - PostgreSQL, Angular,
 - Squish, Python
-  Services:
 - Software Development,
 - Automated Testing
-  Trends: Production Planning

Highlights

- Vizualize factory processes in 2D and 3D for a better understanding of flows, pain points and overall system optimization.
- Multiple simulations of the production process are available before SOP and on existing factories. This allows the optimization of costs in terms of manpower and resources.
- The application allows the import of factory layouts created in AutoCAD. Users can build on the imported plans and export and reuse them in AutoCAD.



Solution

The software aids manufacturers with all phases of planning and optimization of a factory by creating a digital twin of the facility. Fortech's manufacturing software team contributed to the development of the application that can help with processes from logistic planning to material flow planning and even reduce worker paths or pain points in the assembly lines. All of these can be efficiently designed, visualized, and simulated with the push of a button. This includes planning started from the first greenfield concept to the actual factory building before the SOP.

Our manufacturing software development team focuses on the solution that provides factories with an overview of their material flow. Depending on the industry and goods being produced, the material flow is optimized in terms of processes and resources. All to ensure an efficient supply and layout. Through well-defined algorithms and automated processes, the software can help manufacturers improve the utilization of tigger trains, for example, and other modes of transportation, too. Users can test their system with a simulation tool and calculate the necessary number of loads/ transport capacity before the implementation of a production program.

The application performs an initial analysis taking into account data such as resources, production capacity, necessary parts, workforce, shift allocation, etc., and then start mapping the layout.

Collaboration

The collaboration started at the beginning of 2015 when our client was looking for a software development company to build their custom solution for intralogistics and production planning.

Our team worked on several projects with different functionalities and in the last four years, we've focused our efforts on the material flow planning component developed by the our client's company.

The first project we developed was an ACAD plugin that allows the existing application to exchange data with AutoCAD. The software, through the plugin, allows the import of the physical factory plans drawn in AutoCAD, then the user makes the desired changes and the data is exported back in AutoCAD. Our team worked on the solution from architecture to implementation and now we offer support and maintenance for this plugin.

In addition, an Agile methodology facilitated the smooth integration of all sub-teams, each specialized on a different area of the product, while the Scrum Master together with the Product Owner oversee the successful continuous delivery.

Our team also worked on:

- a logging mechanism and replay tool for for a RPC-based application. The application offers an RPC interface as an external API. We implemented a logging mechanism for this API than a tool that could replay the logged sequences. The tool was further improved so logs could be created or edited;
- CQRS Framework - Qt implementation for CQRS and ES patterns;
- an internal app that will help our client to determine which of their several PoCs are suitable for production;
- BlobStore - Qt API over OpenStack/Swift services;
- DB integration of an existing internal application – Persist data model inside a PostgreSQL DB.

Client Benefits

- The team at Fortech improved the software's performace by reducing the loading time of digital models for large scale factories by 90%.
- Internal testing times were reduced from 60 to 3 minutes per test case due to the team's work on the RPC Logger/ Replayer.
- The application allows the user to reimport the list of parts used for the finished product with different parameters and analyze (without any other change) how this impacts the total duration and cost of production.





ABOUT FORTECH

Fortech is a top Romanian software development company headquartered in Cluj-Napoca. With a workforce of 1150+ people, Fortech has been repeatedly recognized by Deloitte, IAOP®, EY, and Forbes for its fast-growing, entrepreneurial journey.

With expertise and a strategic focus across healthcare, financial services, automotive sectors, and more, we cover the end-to-end software life-cycle development to deliver the innovation, scalability, quality and speed our clients need.

Our approach to software engineering combines strong technology and process know-how, Agile delivery methods, and a blend of code quality practices and metrics refined in almost two decades. Since 2003, over two hundred fifty clients chose Fortech as their tech partner.

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