

## CASE STUDY

# Automating Maintenance of a Medical Device

## Summary

### Challenge

Ensure timely and consistent maintenance and calibration of approximately 50 fluoroscopes across a health system comprised of 24 hospitals.

### Impact



Enhanced patient care by correctly calibrating fluoroscope machines to provide accurate diagnoses.



Improved fluoroscope user experience by establishing a consistent, easy to navigate, maintenance routine.

### Solution

Discovery, design, and architecture of an automation solution to track and alert maintenance requirements of fluoroscopes.



Reduced CAPEX by increasing the lifespan of fluoroscope devices across the health system.



Created a foundation that can be adapted to expand automation across a variety of medical devices throughout the health system.

## The Business Challenge

A \$13B not-for-profit health system was finding it difficult to keep up with the maintenance and calibration of approximately 50 fluoroscopes located across its 24 hospital facilities. At the time, these activities were being manually tracked using a paper chart attached to each fluoroscope. Maintenance staff needed to travel to each facility, flip through the charts, and manually track intervals to ensure fluoroscopes were maintained and calibrated.

This resulted in a poor user experience - from the maintenance and cleaning staff, to the providers (primarily nurses) who frequently encountered uncalibrated or broken fluoroscopes when treating patients. Our client approached Entisys360 looking for a solution to address these challenges.



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## The Solution

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Entisys360's automation consultants initiated the engagement with a discovery process – documenting existing processes and identifying business requirements across all stakeholders including maintenance and cleaning staff, IT support and clinical providers.

With a solid understanding of the business requirements, our automation engineers then designed and architected an initial automation prototype using a .NET Project and SQL Server stack. The first release aimed at addressing the initial requirements of configuring calibration requirements and creating alerts when calibration was due.

Once the initial prototype was approved by our client sponsor, Entisys360 collaborated with the client's developer team to build the first release. Additionally, we created a plan for future release that detailed resource requirements as well as feature prioritization against each one-week sprint cycle. Each sprint included testing, validation and peer review prior to release.



## The Impact

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Entisys360's automated fluoroscope maintenance solution was well received by our client. As the team made the end-user experience a specific focus throughout the entire design process, stakeholders reported a positive user experience with the new solution. A feedback ticketing system was incorporated into the release to solicit continued feedback on enhancements, which the team continues to review and incorporate for future updates.

Through our discovery process, Entisys360 uncovered many variances between calibration of the client's fluoroscopes. Additionally, broken equipment was frequently left unreported for months. Our automation solution alerted the right individuals to address miscalibrations and breaks so that they could be corrected in a timely fashion.

Among the numerous benefits of the automation solution are enhanced patient care as correct calibration is critical to an accurate diagnosis, longer shelf life as devices were maintained appropriately, and a positive clinician and patient experience as every fluoroscope was calibrated and functional when needed.

Finally, Entisys360 created an automation solution that served as a template that our client could adapt and apply to medical devices across the organization. This was a significant benefit as the organization has hundreds of similar devices that could leverage this type of solution.

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