The Computerworld Honors Program

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Final Copy of Case Study

Status:
Laureate

Year:
2013

Organization Name:
Washington Suburban Sanitary Commission

Organization URL:
www.wsscwater.com

Project Name:
Real time mobile collection of field data

Please select the category in which you are submitting your entry:
Innovation

Please provide an overview of the nominated project. Describe the problem it was intended to solve, the technology or approach used, how it was innovative and any technical or other challenges that had to be overcome for successful implementation and adoption. (In 300 words or less.)

This project was to provide the ability to electronically capture and upload field water sampling results and chain of custody information at the source using 4G LTE connectivity with iPad devices running a web application. The use of these technologies eliminated delays in getting critical information about field readings from water samples to customers as well as critical staff because the sample collector was still in the field. The goal of the project was the "real-time" exchange of data from the sample collector to the main application, which provides data results to the entire customer base. To accommodate the goals of this project, a web application was built using IronSpeed Designer, which is an Rapid Application Development (RAD) tool that allows the building of .NET web

applications using various database structures such as MSSQL, SQL Server, Oracle, or ACCESS. The web application shared data with the main application regarding samples that needed to be collected. It pre-filled information using data from the main database, allowed the sample collector to quickly identify where to specify the results and transmitted updates of the downloaded data back to the main database once field samplers entered this information into the web application while in the field performing sample testing. To generate the official record of the collected results, Crystal Reports was used to print out any official documentation needed once the collectors returned from the field. This project was innovative because it took a manual process that took over two days to fully complete and turned it into a process that was fully automated, had real-time updates, used 4G LTE and iPad technology, equipped vehicles with 4G LTE routers and used them as a "hot spot" Wifi connection for the iPad devices. Finally, the project eliminated the manual entry of data.

When was this project implemented or last updated? (Please specify month and year.) Has it incorporated new technologies and/or other innovations since its initial deployment? (In 300 words or less.)

The project was implemented in December 2012. New technologies are continuing to be explored including using cloud computing and looking at ways to integrate directly with the hand-held measuring devices used by the field samplers.

Is implementation of the project complete? If no, please describe the project's phases and which phase the project is now in. (In 300 words or less.)

The implementation is not complete; however, it is in the final verification and testing phase. We needed to ensure that all sample collection locations maintained connectivity throughout all sample routes. Testing included the following: 1.) Field sample collectors are testing the iPad solution along their monthly routes 2.) The 4 LTE Wifi hot spot (routers mounted in the vehicles) is being thoroughly tested to ensure collectors maintain strong 4G LTE signal strength throughout the service area. 3.) Verification of "real-time" data uploads are being confirmed in the main application 4.) Automated jobs that process collected data are being constantly run.

Please provide at least one example of how the technology project has benefited a specific individual or organization. Feel free to include personal quotes from individuals who have directly benefited from the work. (In 300 words or less.)

This technology project has benefitted the Laboratory Services Group as a whole as the amount of time spent by the field samplers have been reduced, the accuracy of the results collected have been increased and the uploading of the field data is seamless. The Washington Suburban Sanitary Commission as an organization has also benefitted since the Systems Control Group (SCG) has been able to review data results of field readings almost instantaneously as the data is uploaded once it is entered into the system by the field samplers. Modifications to the chemical composition of the water can be made to ensure the quality of the water remains at the level expected.

Would this project be considered an innovation, a best practice or other notable advancement that could be adopted by or tailored for other organizations and uses? If yes, please describe that here. (In 300 words or less.)

It is considered innovative and a notable advancement as we are moving the technology of water quality testing into a technological age. Field sampling is done by multiple agencies; however, most of these agencies continue to use paper and pencil to record the desired results. Recording the data multiple times (i.e. on a paper chain-of-custody and then into the main application) is notorious for causing problems in data accuracy. An automated application allows validation checking for sample results that seem to be out-of-range.

If there are any other details that the judges should know about this project, please note them here. (In 300 words or less.)

Reginald Thorpe was the visionary for this project. Nothing else had been done by the Washington Suburban Sanitary Commission (WSSC) to accomplish this objective. Within 60 days, this project was envisioned, conceived, and working in a pilot model based on the vision. The team that Reginald Thorpe used was a team of two for the architecture, application design, database design, development and deployment. Additional resources from other teams were utilized to perform testing and validation of the application to ensure all needs were met.