Candidate for FOSA Innovation Award

Integrating real time damage prevention alarms with the Texas 811 One Call database for CenterPoint Energy

Submitted by: JJ Williams, Global Commercial Director, LUNA, john.williams@lunainc.com

People involved: Kyle VanLandingham (Texas811), Aaron Mitchell (Texas811), Dane Langen (LUNA), Samuel Collins (LUNA)

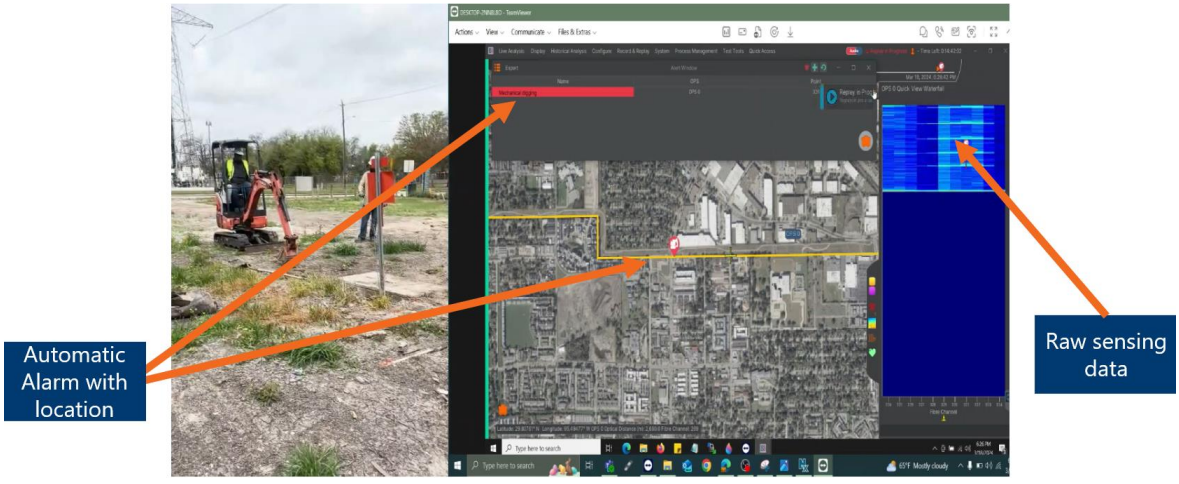
Other organizations that should be recognized: Texas811 and CenterPoint Energy

Project Location: Houston, TX

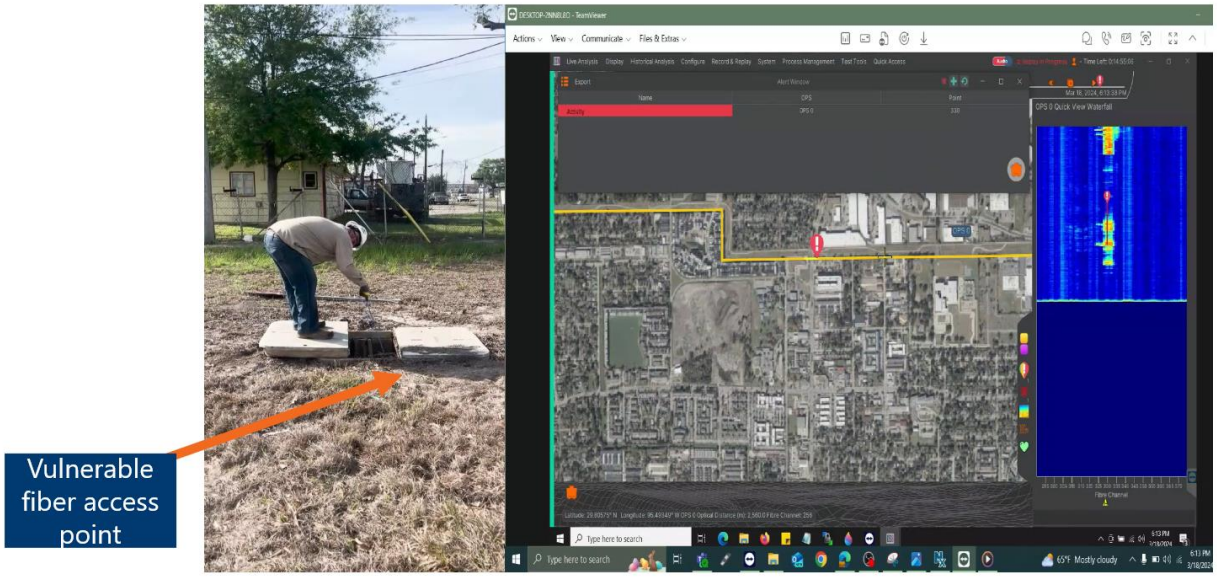
The innovation and project:

Damages to buried utilities is a $30bn problem annually across the nation, that impacts people's daily lives if they lose power, internet or water. The utility industry has made a concerted effort in the last decade to reduce these damages, mainly through education and outreach, urging people to use the 'Dial before you Dig' service created in each State. In the '811 call center' ecosystem, construction locations can be submitted for a permit and logged in a database, with on-site locates to ensure that buried infrastructure is not damaged by the construction. Continuous monitoring technology for buried infrastructure has not been an area the industry could make progress, because of technological and economic limitations. For example, the sheer volume of cameras needed for an extended right of way, or the cost of using satellite data, as well as the challenge of classification of threats vs. non-threats on right of ways with this data.

With fiber optic sensing, the utility industry now has a technology that can leverage pre-existing fiber in utility corridors, to provide early warning of excavation. With the cost per mile of sensing having decreased and the performance of the technology increased, with intelligent threat classification techniques, utility operators have been deploying more and more sensing systems, on critical assets where there is accessible fiber in the same right of way. So the economic and technological challenges of having live monitoring of right of ways can now be overcome for the first time, through the use of fiber optic sensing.

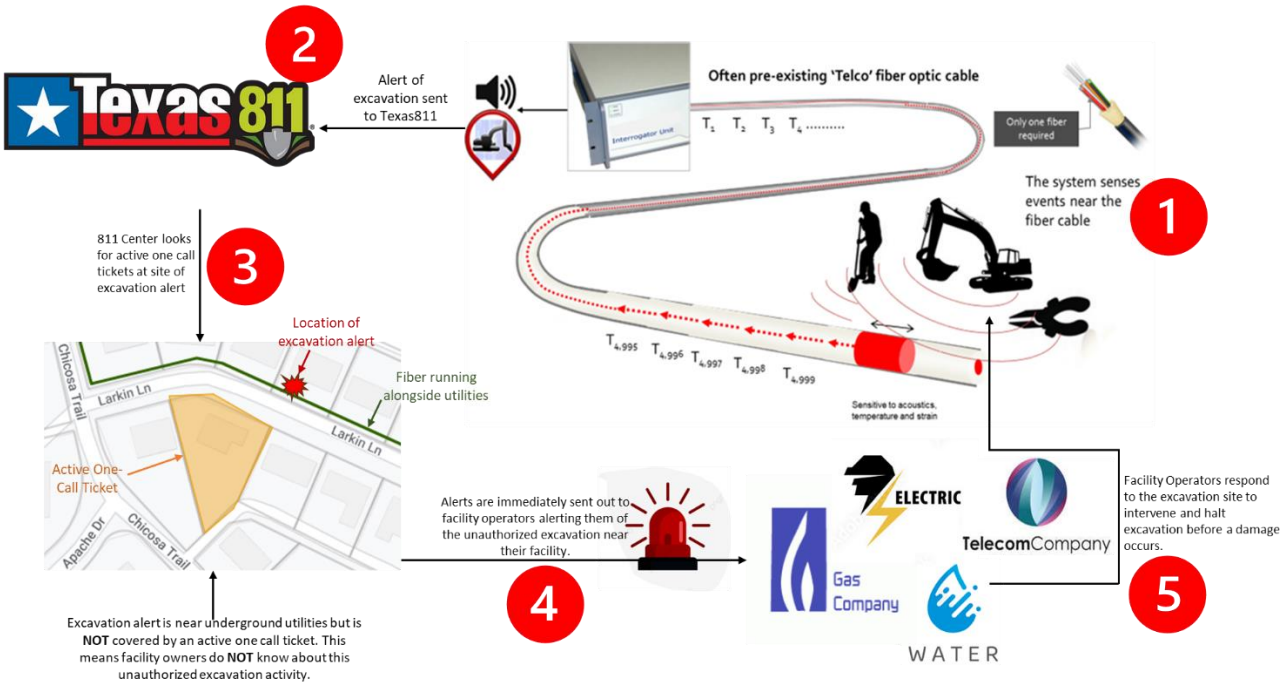


An immediate question when activity is detected on a right of way is – is it permitted or unpermitted? If it is unpermitted, then the asset owner will want that activity to cease as soon as possible, to avoid costly asset damage or even worse, loss of life. Damages with no 'One Call' are the widely recognized main cause of damages. Therefore, if a fiber optic sensing system can integrate to the One Call database in real-time, have the location of an alarm queried against the database of permitted construction activity, then the asset owners have a powerful solution: there is construction activity detected in real-time near their asset, which is unpermitted. They can then take appropriate response action with their ground crews, to intervene and prevent that activity from causing damage.



Since 2022, LUNA (through their partnership with Duraline for bringing innovative solutions to major utility stakeholders) have been collaborating with Texas811 to develop an integration between their excavation alarm locations and Texas811's One Call database. This was developed between Texas811 and LUNA software teams, to demonstrate that live monitoring Alarms from real world right of ways could be automatically queried against the Texas811 database, with an immediate output notification from the 811 center to an Operator if the Alarm was for unpermitted construction activity. In early 2024, this new product was installed on a 20km stretch of CenterPoint Energy fiber, along a busy right of way in central Houston. CenterPoint are a major utility committed to damage prevention innovation.

During this demonstration, LUNA and Texas811 were able to successfully showcase the integration of their systems, with the alarm data from the sensing system being looked-up in the Texas811 database automatically, with a notification to CenterPoint if the activity was unpermitted. The workflow developed for this solution is described in the following graphic:



Why it should win the Award:

For innovation to be successful in a business-to-business environment, it cannot be overly disruptive to the daily operations of that business. For an asset owner to get an additional notification from an existing data source (an 811 Center) – provides a seamless method for fiber optic sensing technology to integrate into the operational ecosystem of major utilities. The technology can be simply installed on existing fiber in the right of way with minimal disruption, then multiple stakeholders within that corridor can benefit from right of way threat data. With this development, LUNA has co-developed a solution that can be rolled out nationwide through State 811 entities. Live right of way monitoring is therefore becoming a reality for utilities and could provide the missing piece that can help the industry meet their publicly stated goal of reducing damages by 50% in 5 years. While the statistical impact of fiber optic sensing will take years to assess in terms of damage and cost reduction, the future is looking very bright based on the operational impact so far observed.