“ESRI ArcGIS Mobile Integration with Work Asset Management”

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Abstract:
ESRI ArcGIS Mobile application helps organization to make precise and real – time business decision, decrease task redundancy and make data more live, also integrate both field and office environments. These applications provide an accurate reliable common operating picture for a field user. On Integrating with Enterprise Asset Management helps the organization to create work order through mobile application in field and improves efficiency and accuracy of field operations. It helps to provide swift data collection and seamless data integration, and avoid paper based workflows, make timely and informed decisions also view work order location details on the map.
The integrated application make easier for any large organization to dispatch work order details to field users in different region across the boundaries, collection ,edit and updated of assets in real time and share these information with colleagues.

About the Author:

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Introduction

Integration of an Enterprise Asset Management tool with ESRI ArcGIS Mobile application helps field users and office staff to work together more efficiently and deliver significantly improved customer service. It also enhance the quality and effectiveness of their corporate data. ESRI ArcGIS Mobile application facilitates faster and more accurate fault finding and diagnosis as it provides an up-to-date view of all ground assets. When a fault or leak is reported, field user can see information about pipes, drainage patterns, network boundaries and other asset information, which may not be obvious from printed maps or plans, text based work instructions or by simply inspecting the site. Previously Field users were using static paper based printed map and data held on CDs, which updated infrequently and difficult to deploy.

If Field user’s reports amendments to the network based on their work or findings, it took a long time before the new information was reflected in the system. On Integration of Enterprise Asset Management tool with ESRI ArcGIS Mobile application overcome data sync issues and it is quickly updated using wireless communications.

Tools and Technologies

- ArcGIS Server 10.2.2
- ArcGIS Desktop 10.2.2
- ArcGIS for Windows Mobile 10.2.2
- ArcGIS Runtime SDK for Windows Mobile 10.2.2
- Microsoft Visual Studio 2008
- .Net Framework 3.5 SP1
- Ventyx 9.2.1
- Maximo Enterprise Asset Management 7.6
High Level Application Architecture

![High Level Application Architecture Diagram]

**Solution Overview**

The work orders are generated through Maximo Asset Management system and those data’s are updated in Maximo DB and GIS DB through business logic. The generated work order are assigned to field users through Maximo integration via Ventyx DA (Ventyx Dispatch Application). Ventyx DA priorities the work and assign the work order details to field engineer through Ventyx MA (Ventyx Mobile Application). Ventyx MA communicates the work order details to ArcGIS Mobile application through WCF (Windows Communication Framework) service and once the work order details are received in ArcGIS Mobile application, those work order with assets will be highlighted on the map with attribute details, which helps the field engineer to easily identify the location. Using ArcGIS Server, Mobile data access service is published and the same data has been generated as local cache to access the application in offline mode.

In case of maintenance activity or emergency the field users can generate work order using ArcGIS Mobile application along with asset information. Those work order details will be communicated to Ventyx MA application with spatial information and passed to Ventyx DA. Ventyx DA transfer those asset details to Maximo and wait for the administrator approval. In case of emergency it will be auto approved by scheduler.
The key features of the above design are

- All your information on a single device
- No more paper maps, forms or CDs
- Field engineers will have all the necessary data on site
- Lively searching and gazetteers
- Swift, efficient integration and synchronization

![Figure 2 Work Order generated in Maximo application](image2)

![Figure 3 Work Order dispatched to Ventyx MA](image3)
Conclusion

The Integration of Enterprise Asset Management tool with ESRI ArcGIS Mobile application is designed to give access to critical data at the point of action. It helps field engineer with a comprehensive set of mapping, operational and infrastructure data to enable them to perform accurate and effective field work. ArcGIS Mobile application access to the latest data allows the field engineers to provide more accurate diagnosis and feedback to the customer. In this way, they can resolve any problems far quicker than was previously possible. The system has proved to be very robust and has required very little in the way of maintenance and support.

References

1. IBM Maximo asset Management

2. ESRI resources.arcgis.com