

Computer Based Geographical Data and Audit System



Advanced Engineering Solutions Ltd are pipeline engineers, providing services in a wide range of technologies for the water, gas and oil industries. A particular specialisation is the provision of inspection, condition assessment, maintenance and asset management strategies.



A major issue when working on utility pipelines is their wide geographical spread, covering the full range of urban and rural locations, which makes field teams, management, the identification of appropriate project locations and accurate record keeping problematic. These issues have been the basic drivers to the development of a map based audit and communication system. This system was developed as part of a pipeline inspection process and a particular requirement is the need to rapidly transfer pipeline inspection data between the field teams and the office. The solution has been to develop a map based communications system with immediate bi-directional communications between site and the office. The outline specification for the system is as follows:

- Central mapping system with a dedicated server and twin large computer screens to allow office based access on-going and historical project data.

Each project type has a specific screen icon; the twin screens allow map and photographs or data to be analysed simultaneously.



Twin Screens

- Field teams are equipped with hand held computers allowing:
 - Control of inspection tools via a blue tooth communication system
 - Recording of field data by direct manual input on the PDA
 - Confirmation of data collection using input 'fields' in the software
 - 'Bluetooth' data via a mobile to the AES office, mapping system



Condition assessment of 900mm Pipe Section

- Vans and inspection tools fitted with GPS receivers to allow automatic location on the computer maps.
- Blue tooth equipped cameras allowing rapid transfer of site photographs from the field team to the office, again based on the GPS positional data.

- The mapping system is available on a password protected website, allowing customer access and allowing interrogation of ongoing and historical project data.
- The GPS system and mapping data also allows accurate identification and guidance to appropriate work sites for the team, based upon an engineer's prior identification of the site.

The system has increased productivity significantly. However it has also provided a very effective audit trail recording accurately the location of each individual project and ensuring that the necessary data is recorded.

The system can be easily tailor-made to suit other applications such as the mapping of housing stock, street furniture, street works etc. with the rapid exchange of data between the site and office. It allows updating of the maps on-site and accurate positioning of features via the GP system. The PDA input screens or 'forms' for use by personnel on site can be designed and tailored to suit any requirement.

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