

Dynamic and Precise Surveying for Water Resource Engineering —Dams, Bridges and Pipelines

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SUMMARY

Water resource engineering is one subtopic of civil engineering. Surveying and mapping for the water resource infrastructure is very important in both construction and maintenance stages. This talk will demonstrate the author's works on dynamic and precise surveying for water resource engineering, i.e., water infrastructure, such as dams, bridges and pipelines. For surveying the deformation of the dam, the author proposed an internal surveying robot combining inertial navigation and odometer to achieve continuous surveying in high precision and efficiency. For monitoring the structural health of bridges, the author invented high precision surveying techniques based on cameras and ground-based radars for obtaining the -bridge deflection. For the pipelines, the author invented a surveying capsule which can float in the pipelines and can detect damages of pipeline. All these invented methods and equipment have received granted patents and have been applied in practical applications.

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