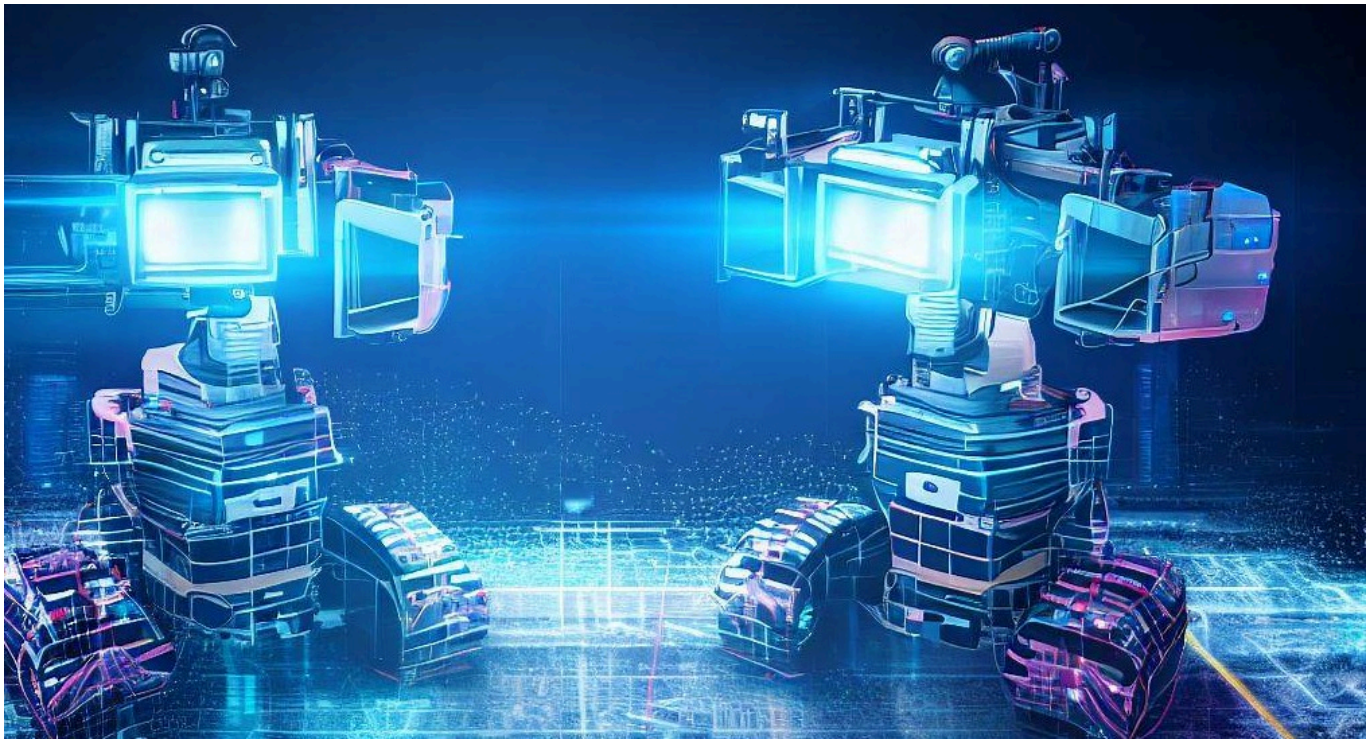
TECH OFFER

Rapid Digital Twinning using robotised LiDAR cameras



KEY INFORMATION

TECHNOLOGY CATEGORY:
Infocomm - Green ICT

TECHNOLOGY READINESS LEVEL (TRL): TRL7
COUNTRY: SINGAPORE
ID NUMBER: TO174969

OVERVIEW

Digitalisation is a global trend with digital twin technology increasingly adopted in various industrial segments including smart factories and plants, digital facility management and operation & maintenance, building and construction, etc. Rapid generation of digital twin of physically existing is desired. Conventionally, digital twin is mainly generated using design software which requires professional modellers to spend substantial design time pending on the complexity of the physical twin (to be constructed) and the manpower available. Building information modelling (BIM) is increasingly used as a representation for the digital twin. For existing environments, scan to BIM technology and authoring software products are used for the process of reconstructing of BIM models from LiDAR scanned point clouds. This manual process is typically time consuming, tedious and error prone. Often, meshed models are used for visualization purpose of the digital twin.

TECHNOLOGY FEATURES & SPECIFICATIONS

Our innovation is an integrated solution being able to autonomously scan physical environments using robotised LiDAR cameras, automatically stitch scanned point clouds using in-house developed software algorithms, automatically recognise BIM components as well as mechanical & electrical plumping using our innovated AI techniques, and automatically convert the reconstructed BIM (not mesh models) from point cloud in IFC4.0. The solution can significantly reduce manpower needs and improve productivity from days/weeks down to hours. Ideal collaboration partners include but are not limited to builders, government agencies, smart city or smart factory planners, construction project management service providers, architecture, engineering and construction companies.

POTENTIAL APPLICATIONS

Building & Construction, Safety, Oil & Gas etc. are relevant Industries. Potential applications include Audit & Inspection, Altering & Addition, Construction Project Management, Smart City, Smart Factory, Smart Process Plant, Smart Power Grids, etc.

A cloud-based solution can be marketed as a product for this technological innovation.

UNIQUE VALUE PROPOSITION

1. Automatic BIM conversion (not mesh models) from LiDAR scanned point clouds is a significant improvement over the current manual conversion; and
2. Rapid BIM reconstruction (not mesh models) in IFC 4.0 format is another UVP with substantial productivity improvement.