



3D Optical Cameras and Engineering Construction Applications

Engineering Technology

FUNDER:

Ontario Centres of Excellence

INDUSTRY PARTNER:

ArcelorMittal Dofasco

TIMELINE:

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RESEARCH TEAM:

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KEY STATS:

Recent research study states that the 3D scanner Industry is estimated to reach USD \$7.4B by the end of 2024 growing at a CAGR of over 11.5%. - Hexa Research

Global 3D scanner market: USD \$2.4B in 2014. - Hexa Research

Context: Infrared scanning capabilities that provide a virtual representation of a space, and its applications to the engineering construction industry, continue to advance; several technological options are available. Laser scanning is a similar technology but a relatively more expensive means of producing a 3D model.

Industry Challenge: The industry partner wanted to better understand optical 3D cameras to produce virtual models, and when such scanning is an appropriate and economical substitute for laser scanning. They required a process from which they perform infrared scans, collect the data, and present it in an acceptable format.

Solution: Mohawk identified potential area scanning technologies from an engineering perspective, and tested three options in two very different industrial environments to identify the quality of the point cloud data generated, the ability to take accurate measurements, and the time it takes to perform a scan. Mohawk developed a set of best practices for applying 3D scanning technologies to engineering design and maintenance problems.

Impact of the project: After reflecting on the overall accuracy of the instrument and making appropriate recommendations as to its compatibility in engineering, Mohawk developed a step-by-step guide to using the preferred scanning device. This valuable technical information represents initial work on a long-term strategy that will eventually provide economic benefit and is critical in developing an overall strategy for implementing and utilizing 3D scanning technologies.

Mohawk's role: The data output created by scanning a structure can be expressed in many different applications, which Building Construction students are familiar with. Mohawk has the experience and expertise with these technologies and the ability to apply them to an industrial setting.