

**TECH OFFER**

**High Fidelity Tele-Operation**



**KEY INFORMATION**

TECHNOLOGY CATEGORY:

Infocomm - Geoinformatics & Location-based Services

Infocomm - Mobility

Infocomm - Video/Image Analysis & Computer Vision

TECHNOLOGY READINESS LEVEL (TRL): **TRL7**

COUNTRY: **SINGAPORE**

ID NUMBER: **TO174942**

**OVERVIEW**

Autonomous driving technologies hold promise of substantial manpower savings, but the technology is still not mature enough to remove the driver from the vehicle. This also hinders the deployment of autonomous systems for many business applications as the ROI (Return on Investment) is not justifiable. There are also multiple scenarios, such as firefighting or waste processing, that require the agility offered by a human operator but have worksites that can be harmful. The technology presented here offers a high-fidelity teleoperation solution platform which can control many kinds of vehicles and machinery with high quality video feed at low latency.

This technology is particularly useful for autonomous vehicle or machinery related companies that want to release their fleet to the market and have the option to remove the requirement for a safety driver onboard. It is also useful for companies providing heavy machinery, or end users of heavy machinery who seek to remove operators from harmful worksites.

## TECHNOLOGY FEATURES & SPECIFICATIONS

Main features and specifications related to the technology are given below:

- Low end-to-end latency at < 200 msec.
- Low bandwidth requirement. The technology can work with 4G/5G/Long Range Wi-Fi.
- Inbuilt smart assistance features and multiple camera view in picture-in-picture format to make operation easy and safe.
- Motion and haptic feedback for better situational awareness.

## POTENTIAL APPLICATIONS

Potential applications for the teleoperation technology can include, but are not limited to, scenarios like –

- Autonomous EVs
- Airport support vehicles
- Street sweeping vehicles
- Prime movers
- Engineering machinery such as forklifts, excavators, and others.

## MARKET TRENDS & OPPORTUNITIES

The global teleoperation and telerobotic market is expected to reach US\$60.9 billion in 2023 and the expected CAGR for the next five years is 14.2%. The TAM (Total Available Market) estimation for 2023 is at US\$14 billion in the logistics and autonomous mobility sectors. In Singapore, the SOM (Serviceable Obtainable Market) is estimated at US\$ 62.1 million. Telerobotics covers a lot of advantages promised by autonomous mobility and does not have the drawback of uncertainties on maturity level and risks associated.

## UNIQUE VALUE PROPOSITION

The offered technology solution offers following advantages –

- The platform can work under 4G, 5G or long-range Wi-Fi.
- Wide field of view along with multiple camera views in an easy to operate configuration provide the operator with a more natural visual feedback and enhanced awareness. The video stream is further synchronised with haptic feedback to improve operator's judgment.
- The platform comes with customizable buttons and controls and can be configured for multiple vehicle types and scenarios.