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Time Critical Wireless Communication System for Industry Network

5G Modeling for Industry TSN


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ORGANISATION PROFILE

Name: Netcube, Inc. (South Korea)

Size: 15 persons

Key Products:
- Nslice – 5G network slicing enabler platform
- Npass – Enterprise mobility automated management solution

Key Solutions/Service Areas:
- Smart City – 5G based connectivity architecture and security model designing and operating
- Smart Factory – 5G based factory automation network designing and implementation
- Smart Office – Automated management solution for BYOD and mobile access office networking

Recent R&D Projects:

- Development of PoC of 3gpp compliant 2ndary authentication system for 5G government workplace testbed (sponsored by Ministry of Interior and Safety, Korea)
- Development and field test of 5G Network Slicing Onboarding System for vertical integration (sponsored by Ministry of Science and ICT, Korea)
- Development and field test of 3gpp release-16 compliant 5G core network functions for enhanced network slicing (sponsored by Ministry of Science and ICT, Korea)

PROPOSAL INTRODUCTION (I)

Vision: main project goal

- Prototype designing and implementation of standard wireless time sensitive network system for vertical industry
- Find a model to integrate 5G standard TSN bridge and industrial devices
- Show viable demonstration of 5G TSN applied manufacturing environment, or xR based industry applications

Motivation: why the project is necessary

- 5G has been introduced for various vertical industries rather than providing Internet connectivity to consumers.
- The networks required for the vertical sectors are to deliver deterministic connectivity for industrial applications.
- Most critical deterministic factor for an industry network is time.
- IEEE has provided ways of time constrain for wired networking by IEEE1588 (PTP) and IEEE802.1AS (Audio-video and TSN) systems.
- 3gpp introduced TSN support functions by 5G system from its release 16.
- With these latest industrial efforts, time-critical applications will be widely required and will require a practical model where multi vendors/industries ecosystem evolves.

Content: which are the developments to be made in the project

- 5G core/access system prototype working as a TSN bridge (Private 5G environment)
- 5G UE prototype working as a TSN bridge
- manufacturing system, xR-based industry application, or automotive system where the developed TSN system is integrated with and proven

PROPOSAL INTRODUCTION (II)

Expected outcome: descriptions of the results to be obtained in the project

- A viable model of WTSN support system for multi-vendor industry devices

Impacts: what will be the expected market impact of the project

- Wired-based manufacturing sites can transform to be more flexible wireless environment
- Manufacturing, plant, and logistics industry will find much flexible mobility without compromising time critical networking system
- The development will play a key role in 5G URLLC (Ultra Reliable Low Latency Communication) environment

Schedule: start and end dates for the project. Duration.

- Start date: July 2023
- End date: June 2026
- Duration: 3 years

PARTNERS

Current Consortium:

- Netcube, Inc. (Korea) : modeling, architecture design, 5G core and access prototyping for industrial WTSN (Wireless Time Sensitive Network)
- Veea, Inc. (France/UK) : design of 5G UE/WTSN adaptor for manufacturing devices

Partner search:

- Manufacturing system integrator (who holds time critical industrial applications)
- Device manufacturer who holds time critical industrial application
- Manufacturers of plant system, medical system, idustrial xR system

CONTACT INFO

Contact info: of the person coordinating the project proposal

- Dong-ho Yu, CEO of Netcube, Inc. as project leader
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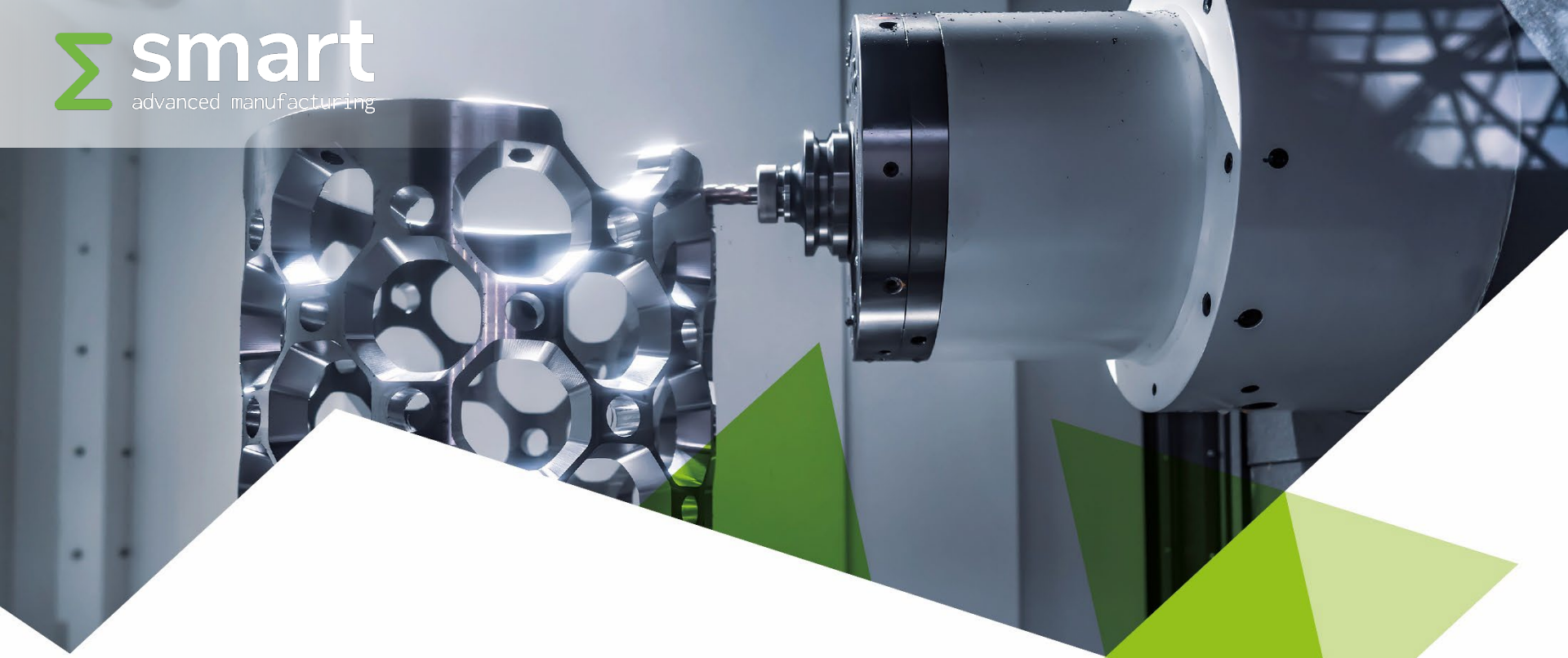

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