

Pervasive Computing

Research Group

Hotel Surya, Prigen, 2-3 Desember 2022

Lima Bidang Unggulan Inovasi Teknologi

Information & Communication

- Teknologi jaringan dan komunikasi
 - IoT, IIoT, ad-hoc network: VANET, MANET, DTN, WSN
 - RF technology and software defined radio (SDR)
- Cybersecurity
 - Network security, web security, cloud security, apps security, data security, forensic, resilient system, Blockchain technology
- Data science (Big Data, AI)
- E-government and e-business
- Biomedical engineering and its applications
- Cloud computing
 - Edge computing, fog computing
- Smart devices
 - FPGA, instrumentasi, sensor, teknik pengukuran

Metaverse

- eXtended Reality (XR)
- Multimedia, immersive, and intelligent technology
- Game technology & animasi
- Blockchain-based multimedia technology
- Digital-twin technology
- Digital workplace technology

Energy

- Energy Conversion
 - Photo Voltaic/solar panel technology
 - Wind turbine technology
 - Ocean energy technology
 - Geothermal energy technology
 - Hydro energy technology
 - Biomass technology
 - Energy and Storage
 - Battery
 - Fuel Cell
- Smart Grid Technology
 - Smart Protection
 - Power System
 - Power quality technology

Cyber-Physical Systems

Robotics

- Industrial and Automation Robotics
 - Logistic Robot
 - Robot Manipulator
- Agriculture Robot
- Healthcare Robot
- Service Robot
- Disaster Robot
- Robotics Vehicle
 - Ground Vehicle
 - Aerial Vehicle
 - Watercraft

Smart Transportation

- Smart Electric Vehicle
 - Electric Powertrain Systems
 - Vehicle Control Systems
 - Vehicle Sensing Systems
 - Vehicle Assist Systems
- Transportation Management system
 - Intelligent Transportation Systems
 - Realtime Vehicle Communication

Deskripsi

- Konsep dalam rekayasa perangkat lunak dan ilmu komputer dimana komputasi dibuat untuk dimunculkan di mana saja dan kapan saja.
- Komputasi dimana-mana dapat dilakukan pada perangkat, lokasi dan format apa pun dalam objek sehari-hari seperti lemari es, kaca mata dan lain-lain.
- Kata kunci: *HCI, autonomous, distributed, Intelligent, Context Aware.*

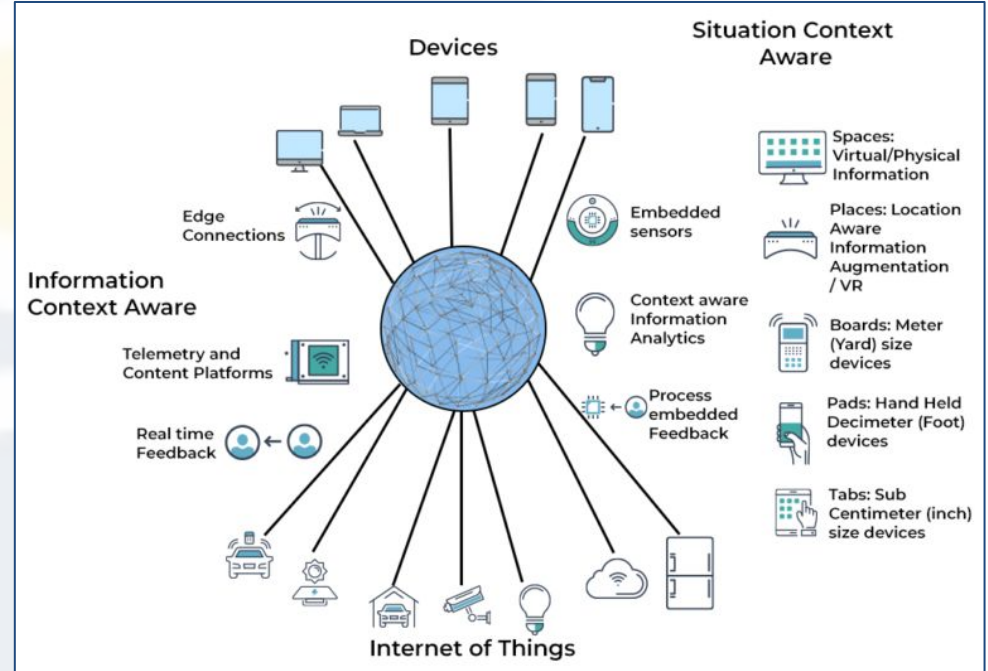
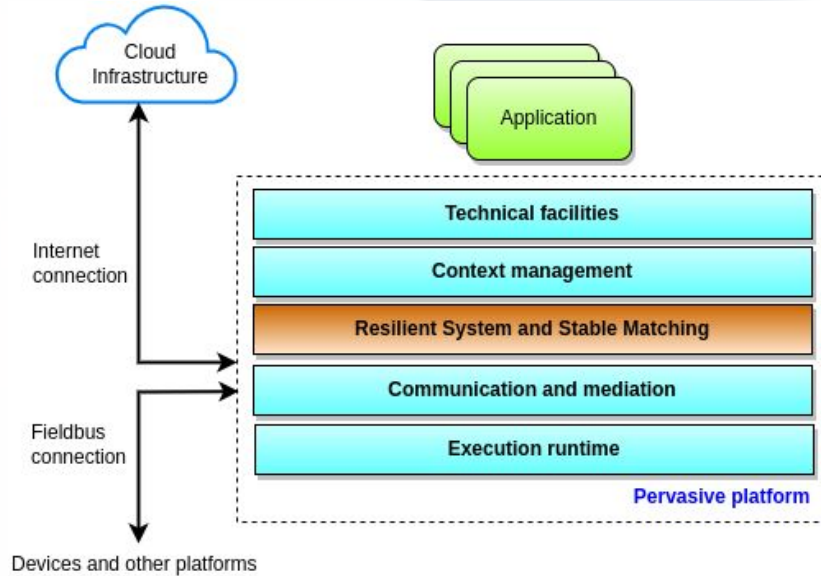


Deskripsi

- Pervasive Computing Layer:
 - Layer 1: The Management Layer → “examines user tasks, context, and index”
 - Layer 2: The environment management layer → “responsible for mapping service needs, user-level conditions of specific attributes, and resource and capability tracking”
 - Layer 3: The environment layer → “monitors and maintains essential resources”
- Implementation:

Logistics, Self-driving vehicles, Home automation, e-Commerce, National security, Medical Technology, Military and armed forces

Framework



Roadmap

2023

2024

2025

2026

2027

Data Center:

- Self-reconfiguration: Job Scheduler
- Auto recovery (homogeneous)

Data Center:

- Self-reconfiguration
- Auto recovery (hybrid)

Data Center:

- VM migration recommendation
- Auto recovery (heterogeneous)

Target Capaian dalam 5 Tahun

Luaran	2023	2024	2025	2026	2027
Publikasi	2	3	2	3	2
HKI	2	2	2	2	2
Feasibility Study	1	1	1	1	1
Produk (implementasi)	1	2	1	2	1
Kerjasama Industri	1	1	1	1	1



Terima Kasih