R&D Request

Company Profile - Description of the company

Company:	City:	Country:
Kyungsung University	**Busan**	**South Korea**

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R&D Request

Technology Field	Smart Factory and IoT	
Title of research	IoT enabled smart factory which can utilize many sensor network. The smart factory can handle highly complex and efficient systems in terms of quality, cost, responsiveness and customer satisfaction.	
Feature & Benefit	Feauture	- The smart factory enables supervisory communication, decentralized process control, wireless device networks, failure messaging and localization utilizing the below mentioned sensors. - A smart factory is implemented on the basis of a Wireless Local Area Network (WLAN), Radio-Frequency Identification (RFID), Ubiquitous Sensor Network (USN), ZigBee, Bluetooth, General Packet Radio Service (GPRS) and Ultra-WideBand (UWB). - The user interfacing with the future factory needs to transform from local access to nomadic access, from fixed dialogue to multiple dialogue, from limited functions to complex functions, from known location to fuzzy locations with longer lifetime and higher flexibility.
	Benefit	- Smart factory can handle flexibility, adaptability, complexity control and cognitive behavior of the future factory. - The future scenario will be described as everything is mobile, networked, semantic services. - The virtuality in the cyberspace merges with reality in the physical world.
Current Stage of Development	□ being Invested	
	Sensor integration and network has been implemented in the prototype model. For a specific manufacturing process, integration of sensor data and process control is under research in the laboratory level.	

Description	Subject: Smart factory utilizing wireless sensor networks and IoT.
	
	Objectives:
	  A smart factory is semantic-based automated data gathering and classification by collaborating knowledge, service and context. It can handle flexibility, adaptability, complexity control and cognitive behavior of the future factory.
	  In the future factory, where everything is mobile, networked and semantic	

	services, virtuality in the cyberspace merges with reality in the physical world. In the smart factory, various wireless technologies are implemented based on new protocols. They are supervisory communication using WLAN, decentralized process control based on RFID, wireless device network based on ZigBee and Bluetooth, failure messaging using GPRS and localization by UWS. Recently, IoT technology is implemented in the smart factory environment. The fundamental characteristics of the IoT are interconnectivity, things-related services, heterogeneity, dynamic changes and enormous scale. The objective of international research collaboration is to propose a framework and use case model of smart factory utilizing wireless sensor network and IoT technology. The expected output of research collaboration is a smart factory framework, a process module which can be used in the manufacturing, a few use case models for different application domains. The domains covers quality management, process control, process monitoring, production control and supply chain management.
IPR Status	No patent yet. We will submit a patent for the process control of sensor networks in the near future.
Internatioanl R&D Experience	☐ No
Avaliable Language	English
Nationality	South Korea
Type of partner sought	The partners can be a Company or Research Institute or University. The role of partners: - Wireless communication based on sensor network. - Use case model of stock management in logistics and SCM - Use case model of combining the production information for real time control for product quality - Combining IoT data with smart factory model
예상 연구 비용	USD $250,000/year * 3 years = $750,000

공동연구 주관기관 필요여부	■ 예 □ 아니오
Expected period	3 years