

Project partners search form

Contact Person Details	
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Organization Details:	
Name: VOLK Co., Ltd.	
Country: South Korea	Website: http://volkkorea.com
Type of Organization: <input checked="" type="checkbox"/> SME	<input type="checkbox"/> Large Company <input type="checkbox"/> University
<input type="checkbox"/> Research Inst.	<input type="checkbox"/> Administraton <input type="checkbox"/> Other (specify):
Number of Employees: <input type="checkbox"/> < 10	<input type="checkbox"/> 11-50 <input type="checkbox"/> 51-100
<input checked="" type="checkbox"/> 101-250	<input type="checkbox"/> > 250
Describe the activities, products, services, and expertise of your organization:	
<ul style="list-style-type: none">· Our research interest includes Development of Loading and Unloading System and Collaborative Robot for Cargo Truck and Container.· The robot contains semi-automatic load & unloading and transporting system, sorting, distribution, caution recognition sensor technology, to alleviate overloaded labor and increase productivity and efficiency during load & unloading task.· Additionally, the robot is able to recognize a type of freights, pick/move/load and also support working personnel under the low level of illumination.· Our ongoing project is aiming for the project from Korea Ministry of Industry, "Developing Logistics Technology, Semi-automatic Load & Unloading Equipment, Automatic Sorting and Distribution system, Truck cargo."(2020~)· Completed project is "Developing lego type shuttle & packing system", granted from Ministry of Land, Infrastructure and Transport. (2017-2020).	

Project Details	
Project Title	Development of Logistics technology, Semi-automatic Unloading & Loading Equipment, Automatic Sorting and Distribution system.
Keywords	

Describe your Project:

- In this project, we are developing robot technology which is capable of alleviating labor and possibly increasing productivity under narrow space.
- The object is to reduce process time to 800 cases/30min(1 person with robot)
- The robot includes semi-automatic unloading and transporting technology for cargo truck and container, a high speed auto-array distributing technology(Korea Railroad Research Institute), conveyor technology(partner required), unloader lead-in technology for cargo truck and container.
- The robot is also able to recognize and pick-move-load atypical freights under low level of illumination(auxilliary support during labor work).
- For recognition of freight, label and caution marking on cases, CNN(Convolutional Neural Network) technology from Kyunghee University will be utilized through cooperation.
- Along with CNN, DWS(Dimensioning Weighing Scanning) method will be adopted in order to sort freights by weights, and according to box sizes.
- In order to verify commercialization possibility of the robot, we will demonstrate and test the robot within Korea Marine Transport site and logistics center of "A" research institute, whose environment is identical to where the robot will be installed for commercial use.
- The robot will be operated under network, which allows for wireless control of multiple robots, with a single controller.

Describe the innovative part of your project:

- Current load & unloading process is dependent solely on actual labor of human, while our project allows for collaboration between humans and robots.
- Our high speed auto-array distributor controls each product dynamically, and does not require large space. It can also replace high-priced foreign distributors' products.
- The robot is capable of both unloading/loading freights.
- The robot can be utilized for land/air/maritime cargo use.
- We selected a gripper method over dropping, and it enables for better protection of freights and is possible to treat according to Safety Authority method.
- network environment provides quicker and more stable performance than wired network which allows for less controlling device to command numerous robots
- Our technology avoids any existing domestic(Korea)/International patents.
- We have secured test sites for simulation & demonstration, which allows for quality feedback & verification process

Describe the market expectations of your project:

- We have been in close relationship with Korea Railroad Research Institute for many years, and have been working together for various technology related to railroad and cargo in Korea. Through this relationship, it is possible for us to provide such high-quality robot unloader-loader to many countries in EU regarding Eurasia railroad connection.

- With this technology, we are aiming to occupy more than 20%(\$8M) of robot unloader market in Korea within 5 years, and take this further for 5% of global market(\$50M).
- We will be promoting the robot to Korea Post, Pusan Port, Asiana Flight, Korea Maritime Transportation, etc.) in Korea.
- In abroad, it will be promoted to Kazakhstan-Khorgos Dry Port, etc.

Possible Partner Profile:

Type of Partner Needed SME Larger Company
(multiple choices are University Research Institution
allowed) Administration Other (specify):

Describe the expertise of possible partner(s) required for your project:

- We are beginning to integrate some of our existing technology at VOLK in 2020, (movable conveyor, robot sensors, robot arms and parts, etc.), and we are interested in all communities who have capabilities in developing the following:
 - High-speed auto-array distributor
 - * algorithm for freight control based on vision sensor data
 - * recognition of multi-locations of freights
 - * control system for array, (HW/SW)
 - Conveyor control system
 - * control process
 - * controller
- Thus, all communities who have such technology for conveyor, and control process, could be our potential partners.
- We are interested in any community's local implementation of the ideas. Logistics and Transport related department or affiliated organization who could conduct field tests are welcome.
- Any community who wish to officially pilot this product are also invited as well.

Describe the role of possible partner(s) in your project:

- Construct & develop above mentioned technology
- Conduct Field Testing for localization in abroad
- Integrate monitoring system