



Solution for

Water Surface Quality Management

Integrated management with robots to monitor · clean up · data on pollution in the marine and water bodies

SHECO



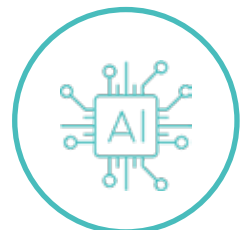
Service Introduction

Based on robots and AI, Sheco's technology automates water quality management processes that are traditionally handled by manpower.



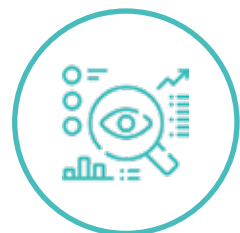
Robot

The robotic solution makes it easy to remove "surface floating contaminants." With an "All-in-One configuration / remote control / impeller recovery method," operators can quickly and conveniently clean work sites with minimal contact with contaminants.



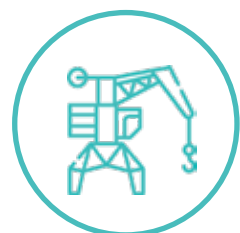
AI

Pollution recognition AI is optimized to capture "surface contaminants." It is equipped with a polarizing filter that removes sun glitter for clear, noise-free transmission, and can be mounted on a special CAM that can be connected to drones, cameras, and ships. If any abnormalities such as pollution are detected, an alarm is sent to the control room for constant monitoring.



GCS

GCS is a system that supports the control of drones, robots, and AI. It is built as a separate website and can be easily utilized on PCs, tablets, and phones, and displays data on 'robots / AI / tasks' in real time. You can share pollutants detected by AI on the screen, specify the robot's work path, and control the situation on site while the work is in progress.

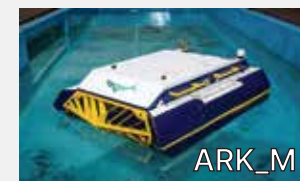


LARS

The LARS system is the basic equipment developed to operate SHECO's robots. It is divided into 'electromagnet / portable / station' and supports easy operation of robots in various environments. In the case of the robot station, it can be installed in water resources → linked with GCS to operate robots in the control room, and it can also support robot charging, recovery, and contaminant storage.

Key Functions

Suitable products that can be customized for different water resources.



Wireless



Wired



Super-compact

- Non-adsorptive recovery
- Boats and ships not required
- Minimizes worker contact with contamination
- Recover contaminants in liquid and dust form



Installation(Cam)



Drone

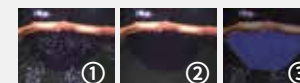


Mount(Ship)



Pollutant Recognition AI CAM

- GCS integrated control
- Easy operation with ships & vehicles



- ①Original → ②Removal → ③Recognition
- Remove noise of Sun Glitter over 92%



Display Work Data



Autonomous Driving



Dashboard

- View real-time data from drones, robots, and AI stations
- Monitoring and working with drones & robots
- Specify and modify routes in real time
- AI CAM operation and AI-linked pollutants emergence alarm and response control



Electromagnetic LARS

- Dual Control Safety Lift
- Maximize Utilization of wireless Robot & Machine



Portable System

- Ease of surface loading of heavy equipment
- Easy to enter difficult areas such as mud, gravel, bushes, etc.



Robot Station

- Situation Room Robots - Task Management
- Robot Charging: Contaminant Emissions Management



Core Technology

Shedo digitizes the old industry with robotics and AI monitoring technology to improve the overall water quality of its marine and water industry operations.

1. Robotics

Collect contaminant in marine-water bodies & real-time filtering system

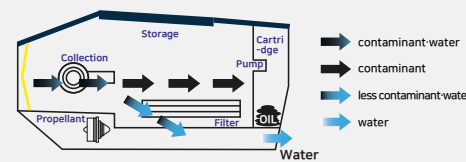
Hardware Technology

1/3 size than existing equipment.
Endure 1.5M wave condition.
Recovery Rate: 30,000L/H



Real-time Separation Technology

Real-time oil separation in 1.1M size
Discharge clean water under 5PPM



2. AI

AI pollutant recognition based on monitoring system

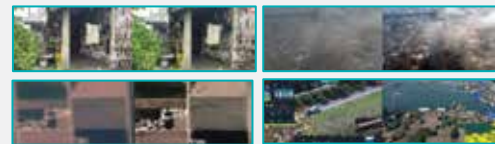
Detected Pictures

Oil recognition is possible even in dark and glossy(ripple) environments due to light reflections



Minimize Ocean Disturbance Environmental Noise

World-class deraining & defogging techs based on AI.
Segmentation techs for recognizing human, ship and marine structure. Super resolution for recognitions.



3. Data

Build a world-class data collection infrastructure

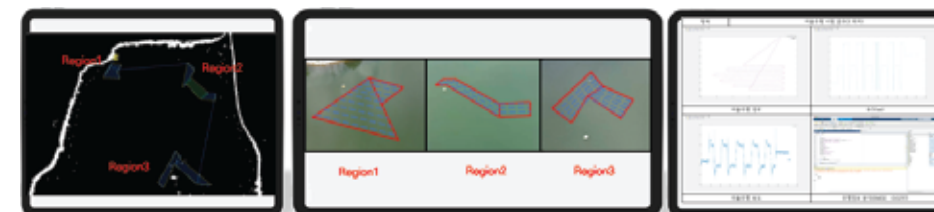
Build a World-class Data Collection Infrastructure

Korea's first oil and marine debris data collection from 12 government vessels nationwide. POC for 'suicide prevention near weir' using AI monitoring in the second half of the year(K-water).
POC for paint recognition using AI camera in the second half of the year(Samsung Heavy Industries).



Robotics & Control System

GCS, autonomous driving, and data-driven "robot control & management systems"



Simulate autonomous driving algorithms Demonstrate autonomous driving algorithms Autonomous Driving Analysis

- Real-time robot status, accident information, and environmental information can be checked in real time through GCS
- It is possible to give autonomous operation commands to the robot and check the driving route in real time.
- GCS and autonomous operation solution reduces the number of manpower by 70%.
- Strengthening continuous response capabilities and improving national control capabilities through data objectification of spilled oil accidents
- ESG data can be sent through monitoring of work information on the Checo Arc
(Total time spent, number of works, total amount recovered, list of works by task, accident location and end time, etc.)

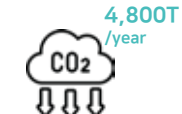


Benefit

Solve existing problems that happen, and prevent problems that will happen.



60%
Cost Savings



4,800T/year
Reduce CO2



1~2 People
Non-experts



Job creation



1/5
Time Savings



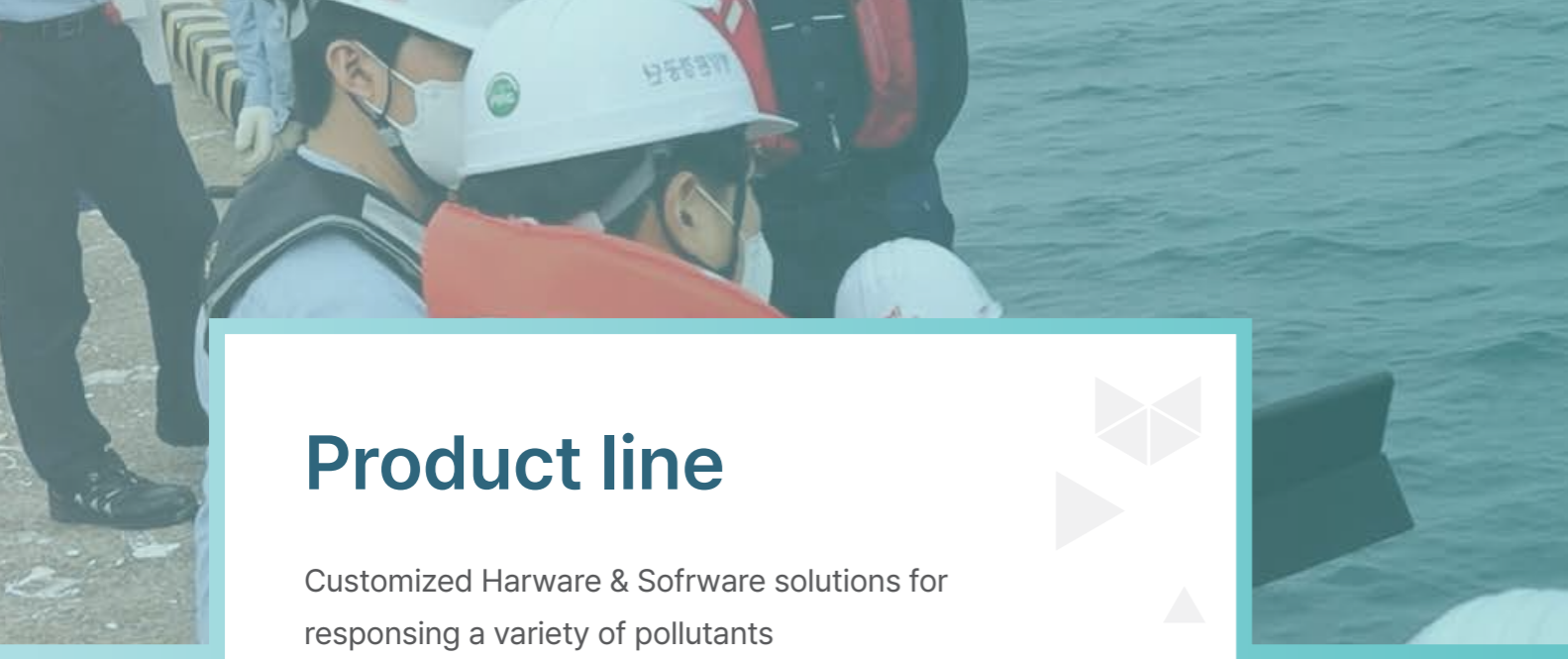
ESG Management



Smartization



Easy Maintenance

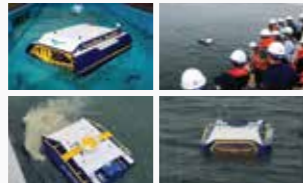


Product line

Customized Hardware & Software solutions for responding a variety of pollutants

Marine Response Training for Korea Marine Environment Management Corporation (KOEM)

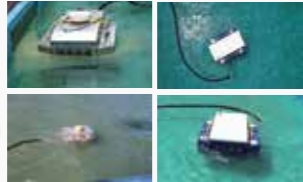
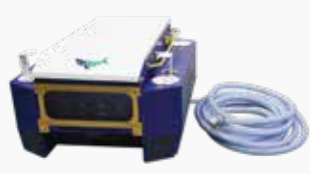
Sheco Ark Series



Ark-M

Sheco Ark-M is a compact size recovery robot used in small-scale oil spill accidents. It was developed to help even non-experts to deal with oil spills efficiently by "automating dangerous manual operations without any large equipment."

Weight	Around 130kg
Size	1,000 x 1,440 x 660 mm
Wave	0.5m (Max 1.5m)
Speed	1m/s
Recovery	30,000L/H
Separation	Discharge clean water under 5ppm (Real-time separation)
Cartridge	20L
Battery	Electric battery (8hours)
Operation	Electromagnetic LARS
Pollutant	HNS, dust, low viscosity oils including Bunker A



Ark-W

The Sheco Ark-W is a wired product that transports contaminants to offshore or a collection bin via a hose connected to the bottom of the unit, reducing work time and replacing manpower in high oil spill and contaminant volumes.

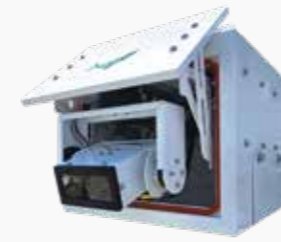
Weight	Around 150kg
Size	1,150 x 1,400 x 1000 mm
Wave	0.5m (Max 1.5m)
Speed	1.2m/s
Recovery	30,000L/H
Pumping	Hose pump (50m)
Operation	Reel equipment & powerpack
Pollutant	HNS, dust, low viscosity oils including Bunker A



Ark-WP

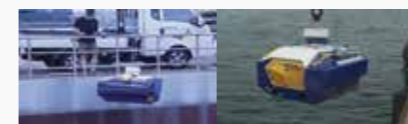
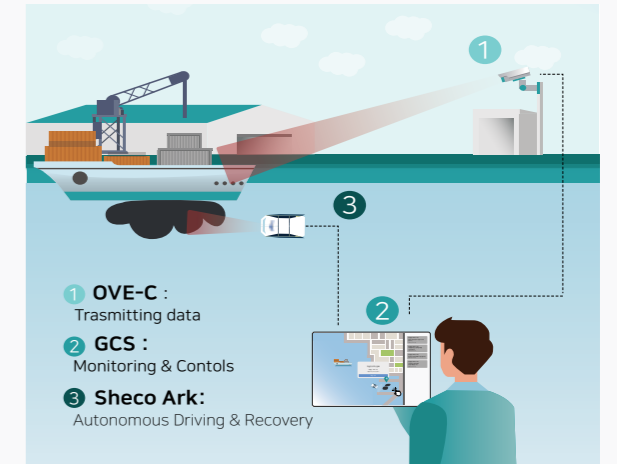
The Sheco Ark-WP is a wired product that transports contaminants to offshore or to a collection bin via a hose, reducing work time and replacing manpower in small oil spill and contaminant volumes with its super-compact size.

Weight	Around 24kg
Size	600 x 600 x 300 mm
Wave	0.5m (Max 1m)
Speed	0.7m/s
Recovery	20,000L/H
Pumping	Hose pump (50m)
Operation	AC power
Pollutant	HNS, dust, low viscosity oils including Bunker A



Pollutant Recognition AI CAM (OVE-C)

Sheco has AI technology that can remove disturbing environments such as sun glitter, fog, and rain. In addition, it overcomes the limitations (time, cost, input environment, manpower, etc.) by drone and human surveillance. 'Ove Cam' enables efficient accident preparation.



Electromagnetic LARS (LARS-E)

A crane module that utilizes electromagnets to launch & recover equipment directly to the water surface from ships, docks, railings, and more, making it easier than traditional cranes.



LARS-E
Lifting capacity 300kg
Weight 23kg
Chargeable E-battery (KC Certified)



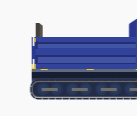
Wireless On/Off
ON/OFF via self-developed application

Lifting	Around 300kg
Size	1500 mm X 1500 mm X 1700 mm
Duration	10hours
Operation	Bluetooth & Applications
Battery	Li-ion Battery 1Set (1Set /3EA)
Weight	23kg



Portable Crane (LARS-S)

This mobile crane can be used in environments that are difficult to reach for large equipment, such as rivers, reservoirs, and dams. The tracked wheels allow the crane to move over mud, gravel, and other uneven surfaces.



LARS-S
자체 중량 600KG
적재 하중 360KG
충전형 전기 배터리



Operation
Wireless-remote controller (AA Battery)

Load	Around 360kg
Size	2300 mm x 1220 mm x 1070 mm
Duration	3hours
Operation	RF-based remote controllers & mounted controllers
Battery	Ni - MH Battery 1Set (1Set / 4ea)
Weight	600kg

Integrated Water Quality Management System

Manage decontamination, monitoring, and data integration

DATA

Customized Recovery Suggestion
(Whether, environment, pollutant type, etc.)
Recovery Simulation & Curation
Predict & mitigate for pollutants

Send Field Status
(Incident status, weather & maritime information transmission)

Data Base



Situation Room Management & Control

Data collection and AI data analytics

Derive optimal control measures

Autonomous Management

Monitoring

AI Image Recognition Monitoring
(Situational awareness, contaminant analysis)
CCTV, ships, drones, water robots

Pollution Response Model
(Transmitting Work Video & Work Details)

Robot Status Information
(standby / maintenance / return to route checking)
(transmit travel route / driving status information)

Pollutant Recovery
(Transmitting Work Video & Work Details)

Recovery



Application

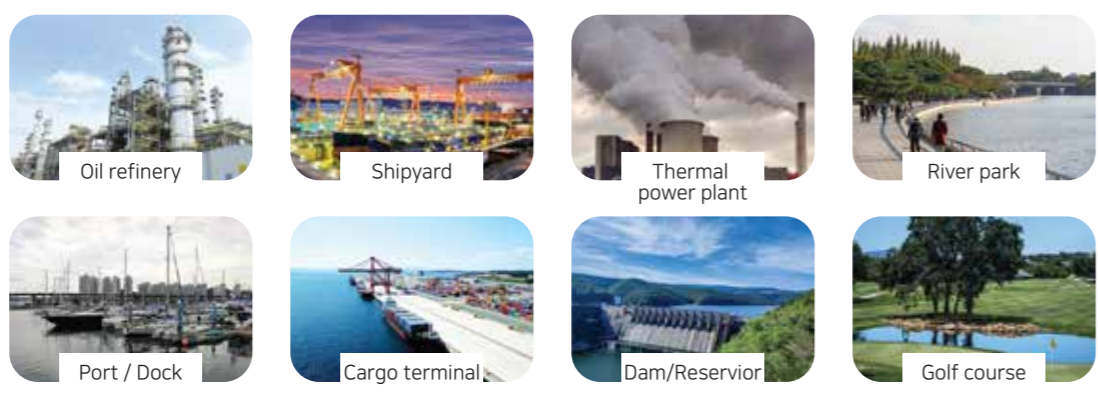
Networks



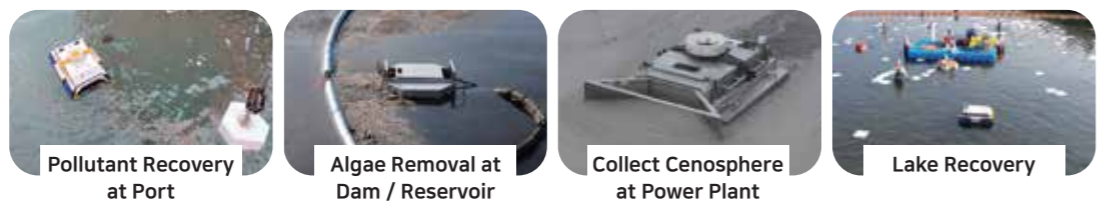
Recoverable Pollutant



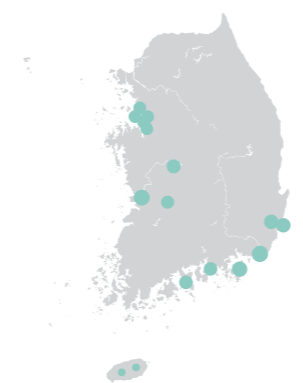
Application



Utilization



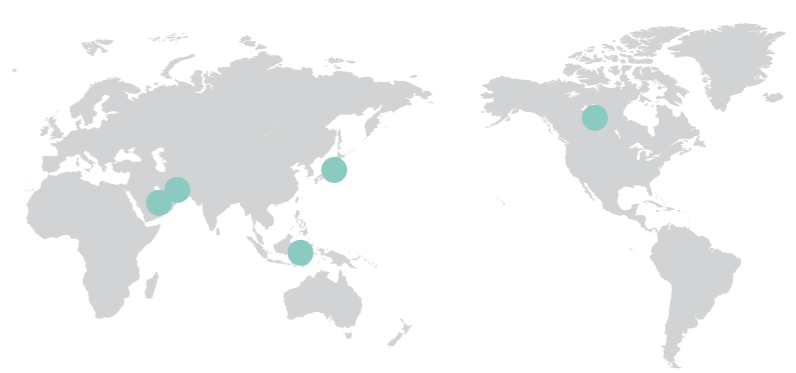
South Korea



South Korea

- In-house tank
- Vessel Traffic Service Center(VTS)
Korea Coast Guard (Incheon)
Korea Coast Guard (Jeju)
- Korea Marine Environment Management Corp.
KOEM (Incheon)
KOEM (Masan)
KOEM (Busan)
KOEM (Jeju)
- Hyundai Motor Group (Jeonju)
Hyundai Motor Group (Ulsan)
- SK Innovation(Ulsan deck)
- Samsung Heavy Industry
- Maritime Affairs and Fisheries(Masan)
- K-water (Daejeon)
- Korea Rural Community Corporation(Jeju)
- Local Response Group(Jeju)
- Shinhan Financial Group(ESG Evaluation)
- Driving Municipal Smart City Initiatives

Global



Saudi Arabia

Invited 42 companies/institutions to complete technology demonstrations, product sales, and joint R&D

- ARAMCO
- National Center for Environmental Compliance(NCEC)
- King Abdulaziz City for Science and Technology(KACST)
- Saline Water Conversion Corporation (SWCC)
- AlphaNarmo KSA(Local Agent)

UAE

Completed technology demonstration to ADNOC, product sales, joint R&D

- ADNOC
- BEEAH TANDEEF
- AlphaNarmo UAE(Local Agent)

Canada

Canadian Nationally Funded Project (MPRI-CRP)

- Memorial University
- Nunasiavut Government

Japan

Product distributors and resellers in discussion

- Matsui
- Makino

Indonesia

Product distributors, joint R&D

- PELINDO (Indonesian national port operation)
- SLICKBAR (Global Oil Response Company)

Global Water Clean up Mobility

Share clean ocean and water environment with current and future generations through the advanced technology.

MESSAGE FROM OUR CEO



Gisung Kwon
Gisung Kwon,
CEO

By several club members of a university neighboring the sea. The idea that drives Sheco's dream first began with the meeting of the current CEO, whose major was marine insurance in a department of commerce and trade, and the current CTO, who used to build unmanned oil recovery robot in a department of mechanical engineering. The two of them wanted to solve the challenges of marine oil spill accidents based on their shared interests and expertise. Thus, they founded Sheco with the idea of 'sharing the clean ocean environment of the current generation with the next generation,' which is encapsulated as the spirit of 'Share + Eco.' Sheco's goal was to efficiently automate the cleanup of marine oil spill sites. With the release of Oil Fence Auto-unfolding Machine and Oil Absorbent Retriever, Sheco, run by the duo, began to develop a marine oil spill recovery robot, which would replace the traditional oil skimmers and oil absorbents. Since 2019, Sheco has released 18 prototypes over 3 years and finally showcased the ultimate Sheco Ark. The company is also developing robots that can respond to "algae, paint, dust, and other pollutants" by applying Sheco's technology to a variety of contaminated sites beyond the ocean. Sheco dreams of fully automating the cleanup process of all marine spill sites to restore the blue ocean of Mother Earth.

Company Information

For the past 3 years, Sheco has been presenting new solutions that overcome the limitations of existing marine recovery equipment, environment and water purification. In particular, Sheco has been selected as one of the Green New Deal 100 & the innovative 100 companies of the Ministry of Oceans and Fisheries.

Found

July 1st, 2019

Field

Marine Recovery & Water Cleanup robot

Business

Response oil spill accident / Clean-up marine-water business / Water purification / Collect & Recover Floating Contaminant

Solution

- 세계 최고 수준의 사고 현장 유출유 데이터 인프라 구축
- 기존 대비 최대 10배 저렴한 비접촉식 오염물 인식
- 오염물 제거시 발생하는 탄소 및 비용절감
- 고위험 오염물 제거 현장의 인력 대체

Investment

The Wells Investment / Hyundai Motor Securities / SK Innovation / CCEI / Honghap Valley Accelerator / KAIST / MYSC

Core Values

Future shaped together with people, technology, and ocean.

HUMAN



Human

1 Worker's Safety

No hazardous work and contaminant-free



Technology

TECHNOLOGY

2 Efficiency

Technology that's easy to use and manage

ENVIRONMENT



Environment

3 Sustainability

Sustainably Structured Marine & Water Pollution Response System

History

From college club to startup, to global company

2024

- 01 CES Innovative Awards in 2 categories
- 03 Selected as Asia Business Development Delegation Seminar in Indonesia
- 04 Selected at Large-scale convergence robotics demonstration project
- 04 Selected at DIPS 1000+
- 04 Selected as Green Product by MOF

2023

- 01 MOU with Marine Response Community in Jeju Island
- 03 Received a Letter of Appreciation from 2nd Square Bridge
- 03 Apply 'Robot Roadmap 1.0' at Ministry of Trade, Industry and Energy
- 05 Korea's first registered marine recovery robot by MOF
- 05 Selected for POC support program from K-water
- 08 Innovative product designation
- 09 Selected as a Startup Supporter by Korea South-East Power Co., Ltd.
- 09 Green Technology by MOF
- 09 Awards in 50 R&D Excellence Ministry of SMEs and Startups
- 10 Citation at Recovery Training by NFA
- 10 Exhibit at ADIPEC
- 11 Grand Awards in Impact-up Demo Day by Honghap Valley Accelerator
- 11 Awards in Scale-up IR Day
- 12 Won the DDASOMI by Korea District Heating Corporation

2022

- 04 Selected as an Innovative Prototype
- 05 Selected as a promising Green New Deal 100 Company
- 06 Selected as a public procurement R&D business by the Ministry of Trade, Industry and Energy
- 06 Selected as an innovative company by the Ministry of Oceans and Fisheries
- 06 Selected as certified technology at SOC Tech Market
- 07 Korea Rural Community Corporation - Verification agreement of algae removal
- 09 Excellence in ESG Management by KOEM
- 10 Participated in Dubai's GITEX GLOBAL
- 11 Awarded Grand Prize at the 17th Digital Innovation
- 12 Received a Letter of Appointment from the Gunsan City Drone Industry Promotion Committee

2021

- 03 Attracted MYSC investment
- 03 Received the Gold Prize at Geneva International Exhibition of Inventions
- 05 Attracted investment and ran TIPS with CCEI in Chungbuk
- 06 Carried out the H-OnDream Eco-Friendly Project with Hyundai Motor Chung Mong-Koo Foundation
- 08 Selected for Incheon enterprises by Shinhan Square Bridge
- 09 Grand Prize at Safety Fairs
- 10 Attend Gitex Future Stars
- 10 Recognized as a viable startup by Incheon Free Economic Zone Authority
- 10 Mayor of Busan's Award at the Ocean Startup

2020

- 02 Awarded the Board Chairperson's Citation from Korea SMEs and Startups Agency
- 07 Attracted investment from SK Innovation
- 10 Selected as a First Penguin by Korea Credit Guarantee Fund
- 12 Signed an MOU for Joint ESG Management (KOEM / Sheco / SK Innovation)
- 12 Passed the regulatory sandbox for KCG and MOF

2019

- 04 Won the Grand Prize at Youth Business Planning Competition
- 06 Received a Letter of Appreciation from the Head of KCG
- 09 Won the Comprehensive Grand Prize at Four Ports Idea Contest
- 11 Won the Award of Excellence at Ecological Business Foundation Competition
- 11 Won the Grand Prize at Central Region Development Youth Energy Dream League

2018

- 05 Selected for the Social Enterprise Promotion Project by MOEL
- 09 Won the Incheon TP Robotics Business Competition Award
- 10 Won the Award of Excellence at the Social Enterprise Business Idea Contest
- 12 Won the Award of Excellence at Marine Business Foundation Contest by MOF

2017

- 11 Grand Awards at Social Venture Competition by MOEL
- 11 Grand Awards at Asia Social Venture Competition
- 12 Incheon's Social Economic Business Idea Contest

Patent & Application



Patent

6

Application

15

Trademark

4

Design

1

Award & Certification

SHECO's water surface management robot has received 4 overseas awards and certifications, 7 domestic technology certifications, and 24 awards including "Development of Robot Technical Standards by the Ministry of Trade, Industry and Energy" and "Revision of the Ministry of Oceans and Fisheries Affairs Law".

- Awards gold prize at International Invention of Geneva
- 2024 CES Innovation Awards in 2 categories
- Letter of Excellence Technology by NCEC Saudi
- Promising Green New Deal 100 Company
- Innovative 100 Company by Ministry of Oceans and Fisheries
- Robot Roadmap 1.0 at Ministry of Trade, Industry and Energy
- Awards in 50 R&D Excellence Ministry of SMEs and Startups
- Green Technology by Ministry of Oceans and Fisheries
- Green Product by Ministry of Oceans and Fisheries
- Selected as certified technology at SOC Tech Market
- Innovative product designation at Public Procurement Service
- Defense Advanced Product Designation Certification
- Development of Robot Technical Standards by the Ministry of Trade, Industry and Energy
- Revision of the Ministry of Oceans and Fisheries Affairs Law (23.4)
- Regularity Sandbox at Ministry of Trade, Industry and Energy
- ESG Management MOU (KOEM / SHECO / SK Inno)
- Grand Prize at Social Venture Competition by MOEL
- Grand Prize at Asia Social Venture Competition
- Excellence at MOF Marine Business Foundation Contest
- Won the Comprehensive Grand Prize at Four Ports Idea Contest
- ISO 9001



Scan the QR code above
to see variety of information.

Sheco, the "Share + Eco" company, is committed to becoming a global leader in innovative technologies for the water environments. We dreams of fully automating the clean up process of all response sites to restore the blue ocean of Mother Earth.

CONTACT

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