SMART WATER

ITSS N

SONDAR

SONIC & PIEZO

The world becomes happier when
we become sensitive more and more.

**IS Tec**
www.istec.co.kr

# THE WORLD BECOME
# WE BECOME SENSITIV

IT IS OUR ESSENCE TO BE MORE SENSITIVE TO WHAT WE DON'T FEEL,
TO SEE WHAT WE DON'T SEE MORE CLEARLY,
AND TO CALCULATE THE UNCOUNTABLE NUMBERS WITHOUT ERRORS.

THE FUTURE THAT ISTEC DREAMS OF IS CHANGING OUR BEHAVIOR BY SHIFTING
OUR THOUGHTS WITH ULTRASONIC WAVES, SENSORS, IOT, AND AI SOLUTIONS,
AND SUSTAINING OUR HAPPINESS BY DEVELOPING WISE TECHNOLOGY
THAT PROTECTS THE HEALTH AND WELL-BEING OF PLANET EARTH
THAT CREATES A CULTURE THAT RISES THE QUALITY OF LIFE FOR HUMANITY,
THUS ACHIEVING THE HABIT.

## Who we are

ISTEC STARTED AS A COMPANY SPECIALIZING IN ULTRASONIC SENSORS IN 1993 AND IS CURRENTLY A COMPANY THAT COMBINES SENSORS AND IT TECHNOLOGY WITH AN IOT SENSOR SYSTEM (ITSS)
THAT OVERSEAS SMART WATER MANAGEMENT SOLUTION, SMART RESERVOIR MANAGEMENT SOLUTION AND FLOOD WARNING SYSTEM BY COMBINING SONDAR,
THE REPRESENTATIVE BRAND OF K-ULTRASONIC SENSORS (IOT) AND ARTIFICIAL INTELLIGENCE (AI) TECHNOLOGY THAT LOCALIZES KEY PARTS SUCH AS DEFENSE SONAR AND MEDICAL
ACCESS ULTRASONIC (HIFU) DEVICES AND WATER-RELATED ULTRASONIC MEASUREMENT SENSORS SUCH AS WATER GATE SENSORS AND SMART WATER METERS.

# S HAPPIER WHEN
# VE MORE AND MORE.

# SMARTER WATER
# !TSS

## ISTEC'S CUTTING-EDGE SOLUTIONS THAT KNOW ABOUT WATER THE BEST LEAD THE ERA OF SMARTER WATER, WHICH IS SMARTER THAN SMART WATER.

IT LEADS THE FUTURE-ORIENTED PARADIGM OF KOREAN WATER MANAGEMENT BY BUILDING A SMART WATER GRID THAT ADDS USER-CENTERED SMART TECHNOLOGY.

SWM Solution●

SRM Solution●

Flood Warning System●

!TSS

Ultrasonic Water Meter

## iTSS is...

ITSS's Smart Water Management Solution is an open platform based smart water supply remote meter reading system that can be connected to other companies' remote meter reading terminals and existing systems by applying standardized protocols.

# SWM Solution
### Smart Water Management Solution

## AMI DEVICE

Reliability has been proven with 14 certification tests for functions and characteristics considering the field operation environment and operating conditions. Various technologies have been applied for low-power design and related domestic patents are also in possession. As of this moment, it has more than 30 local government clients in Korea.
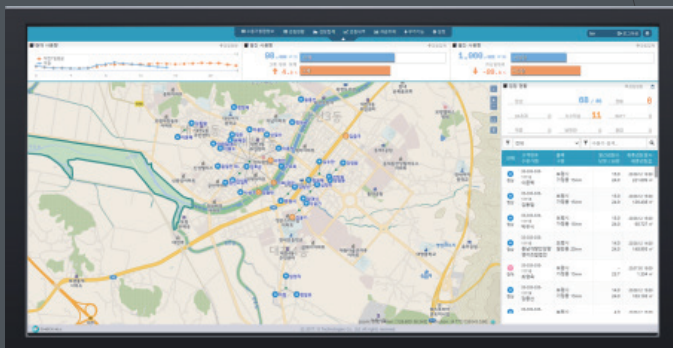
### *feature*

- Passed IP68, thermal shock, heat/moisture-resistance/cold-resistance reliability test
- Implemented the watchdog function
- Applied the only patented technology in Korea that can check the remaining battery level
- Owns technology patent to prevent battery discharge even in poor communication environments

## SMART METERING SYSTEM

It is the first oneM2M based system in Korea and has passed the security eligibility review by the National Intelligence Service. It is a user-centered monitoring program because it has the openness and compatibility of open platforms.

### *feature*

- Applied the latest HCI server
- Applied an algorithm that compensates for erroneous data in the meter reading data
- Applied algorithms to prevent communication traffic bottlenecks
- One-stop service support until billing notice
- Provision of additional services for care for single-member-family households
- Applied leak detection rate improvement function through patented-technology based water usage pattern analysis

# SRM Solution
## Smart Reservoir Management Solution

Water management solution that automatically measures the water level, storage capacity, and storage rate of agricultural reservoirs, sends data to the water management situation room, helps managers manage water conditions that are appropriate to water management, and analyzes and responds to emergencies such as drought and flood

### *feature*

- Two-way communication and control function
- Application of overcharge/over discharge prevention circuit
- Flexible external sensor interface available
- Logging function of its own data
- Notification functions (anti-theft, risk level, risk change amount)
- Coordinator function such as Zigbee communication
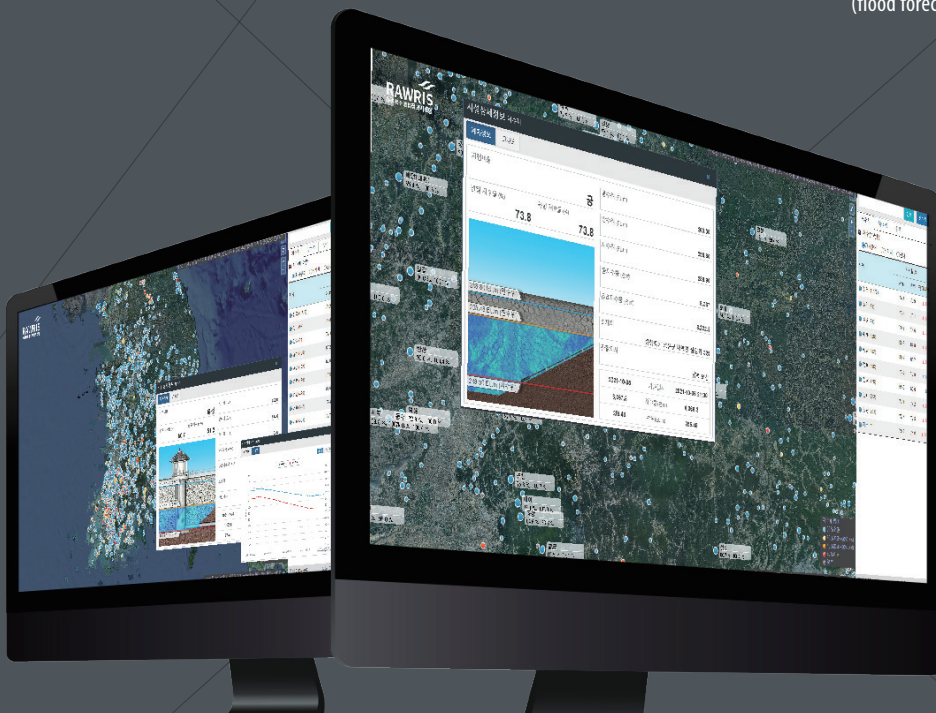  (maximum node 5, wireless channel range 11~26)

# FWS
## Flood Warning System

A user-centered, location-based measurement information system for effective water management based on the integration of real-time data collected based on ISTEC's independent IoT sensor, water resource operation status
(water level, water rate, flow rate, flow rate, water quality, etc.)
and facility status

### *feature*

- User-centered, location-based, integrated management system
- Real-time water resource measurement information
  (water level, flow rate, flow rate, water quality, rainfall, video, etc.)
- Provision of facility status, data accumulation and analysis
  for water resource management
- Drought and flood analysis to prepare for natural disasters
  (flood forecast warning)

## sONDAR is...

SONDAR, launched in 1993 with the goal of localizing ultrasonic sensors, is a brand specializing in measuring sensors where all processes from molding piezoelectric materials, which are the basis of ultrasonic waves, to manufacturing sensor finished products, are focused only on making precise sensors. It is expanding its scope from hydrological sensors to high-function complex sensors in defense and medical fields. Industrial measuring devices have been exported to 25 countries, including the United States and China since 2004, and has developed ultrasonic smart metering technology in the Internet of Things era.

# Piezoelectric Device
압전세라믹 부품

## Piezoelectric materials composed of PZT (pbtio3) based synthetic compounds

Various methods of manufacturing possible since they are composite materials for PZT-based ceramics and organic compounds such as 1-axjs press molding, Powder Injection Molding (PIM), and Cold Isostatic Pressing (CIP).

### feature

- Suitable for underwater acoustic sensor, excellent environmental and lifespan stability according to the US Navy's NAVY1 and NAVY2 standards
- Excellent temperature and mechanical stability, suitable for medical and special industries
- High output available (PZT type)
- Broadband, excellent reception sensitivity (composite)
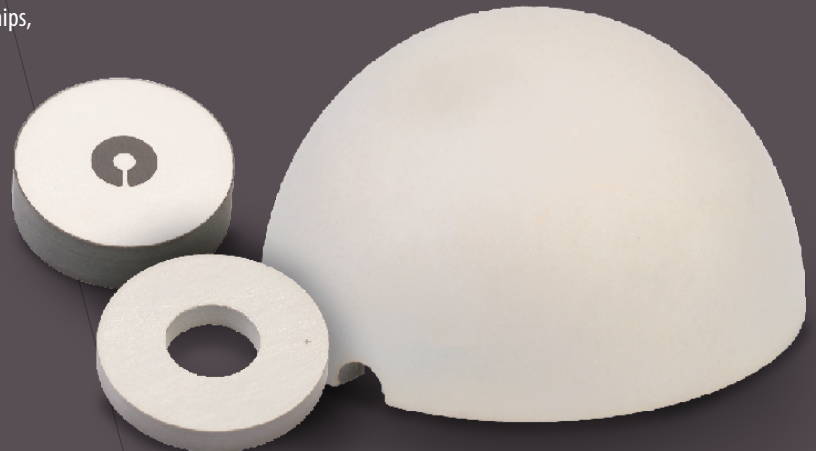- Product performance analysis and design available

## Piezoelectric Device
방산용 소나(SONAR) 소자

It is a key sensor product for sound detection and guidance control of naval underwater weapons systems and is a major component installed in ships, various torpedoes and suspicious ships, patrol aircraft, hard torpedo blue sharks that are used in helicopters, torpedoes disturbance, tug-of-war stations, and submarine systems.

### feature

- Excellent underwater sound transmission and reception traits
- Transmitting/receiving sensors specialized for underwater environment
- Development of high-performance underwater sensor system such as underwater image and communication sensor for precise signal processing

# Ultrasonic Device

## Smart Ultrasonic Water Meter

It is the first self-produced ultrasonic measuring water meter made in Korea, with high durability and low power design, while compensating for the shortcomings of existing mechanical water meters such as errors in long-term use.
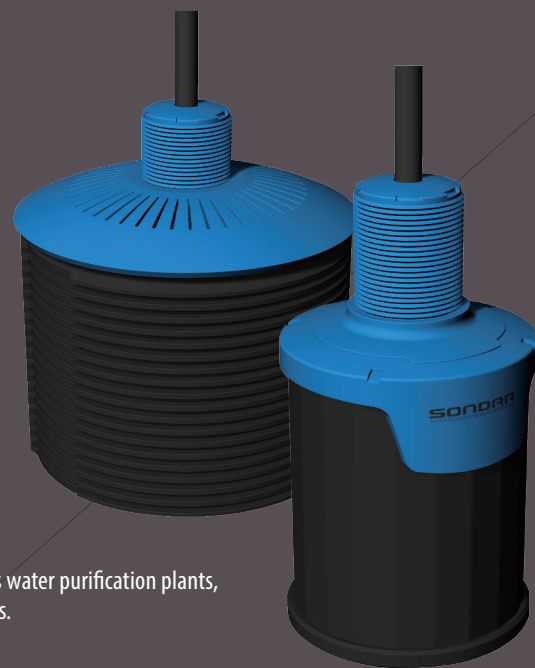
### feature

- Completely domestic products from piezoelectric materials to water meters
- Minimization of error in long-term use
- High magnification (250 magnification) / Low flow rate measurement ( $\fallingdotseq 2\ell$/h)
- Long life span (more than 12 years) / IoT communication

## Ultrasonic Level & Flow Meter

It was developed with pure Korean technology, replaced imported products from domestic plants such as water purification plants, and exported to 25 countries around the world with technology know-how accumulated for over 20 years.
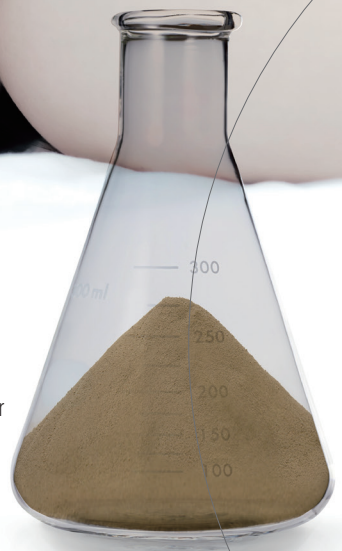
### feature

- User-centered intuitive touch screen UI design
- Applied sensor structure design that is strong against direct sunlight and temperature change
- Applied the algorithm for accurate water level measurement
- Various flume and official weir provision

Piezoelectric Material Powder

# PINPOINT ACCURACY

# SOND>R

## YOU CAN MEET A BETTER TOMORROW WITH SONDAR'S PRECISE ULTRASONIC TECHNOLOGY WITHOUT AN INCH OF ERROR.

SONDAR HAS CONTRIBUTED TO THE DEVELOPMENT OF ULTRASONIC SENSOR TECHNOLOGY IN KOREA FOR 28 YEARS, AND IS NOW ENTERING THE DEFENSE, MEDICAL, AGRICULTURE AND OTHER INDUSTRIES.

SOND>R

- Ultrasonic Sensor
- Ultrasonic Device
- Ultrasonic Smart Water Meter
- Piezo Device
- SONAR Device
- Ultrasonic Level/Flow Meter
- HIFU(High-Intensity Focused Ultrasound)

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ULTRAS