Intelligent Surveillance system By Voice & Video convergence

2019

bono ICT Co., Ltd.

Company Overview

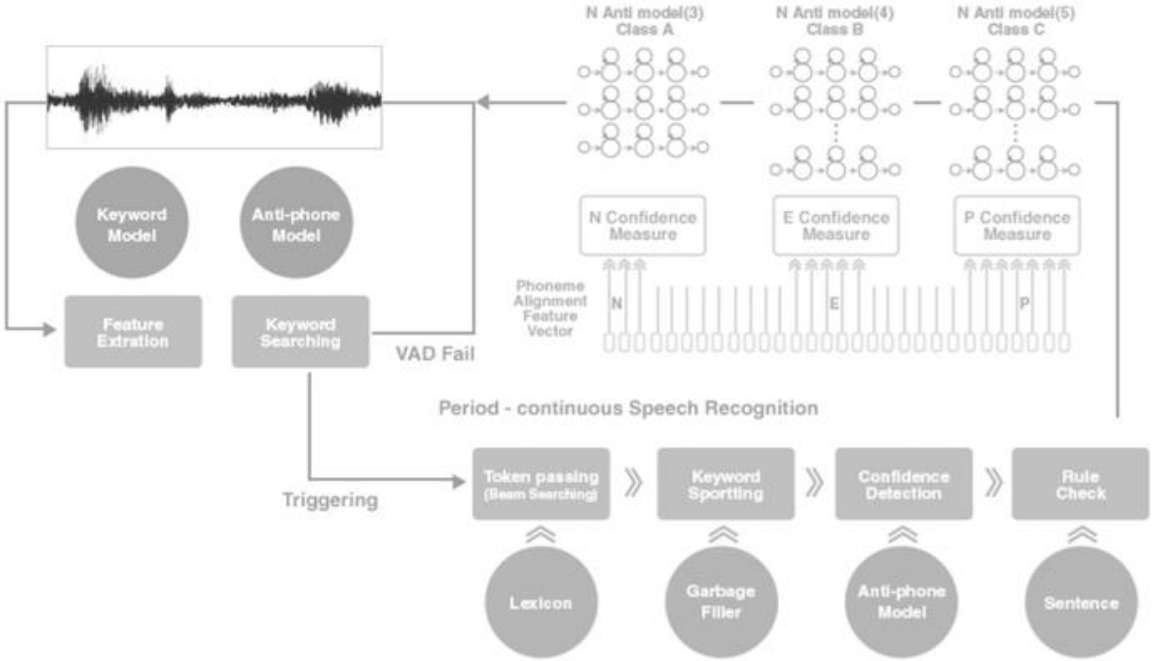
BONOICT Co., Ltd. is a specialized company in software and hardware technology over 10 years voice technology know-how, also has several patents. We develop and supply the optimized solutions of speech-recognition and speaker-verification for smart home, surveillance, and education market. "BONO" means "Good, Excellent" in latin. We will be a global leader providing valuable technology in the field of ICT.

Establishment	Jun 2016
CEO	HYUNGJOO LIM
TEL	+82-70-5121-3340
FAX	+82-70-8255-3340
Main Biz	Speech-Recognition
	Smart Surveillance
Capital	USD 150K
Revenue	USD 1.3M

Jun 2014	Registration of Patent (Mobile Accessary Voice-Recognition Remote Control)
Jun 2016	Establishment of BONOICT Co., Ltd.
Dec 2016	Supply SLD module for CCTV camera (Hitronsystems)
Apr 2017	Supply speech-recognition module for Emergency Bell (SAtech/NewKorea elec)
May 2017	Development Korean TTS DB for Intelligent Voice secretary (Samsung)
Jul 2017	Headquarters relocation (DaeJeon ETRI CTCC)
Aug 2017	Registration of Patent (Exetended Monitoring Device Using Voice Recognition Module Installed in Multi Spot)
Oct 2017	Establishment of Seoul Branch office (Magok Centraltower II)
Nov 2017	TIPS R&D Project selection (Ministry of SMEs and Startups)
	Investment contract with CommaxVenturus
Fev 2018	Registration of Laboratory Company (Ministry of Science and ICT)
Mar 2018	Establishment auxiliary research center and certified Venture company
Nov 2018	Supply Voice Surveillance system to Geoje-city
Jun 2019	Headquarters relocation (DaeJeon DaedeokBizCenter C-206)

Technology

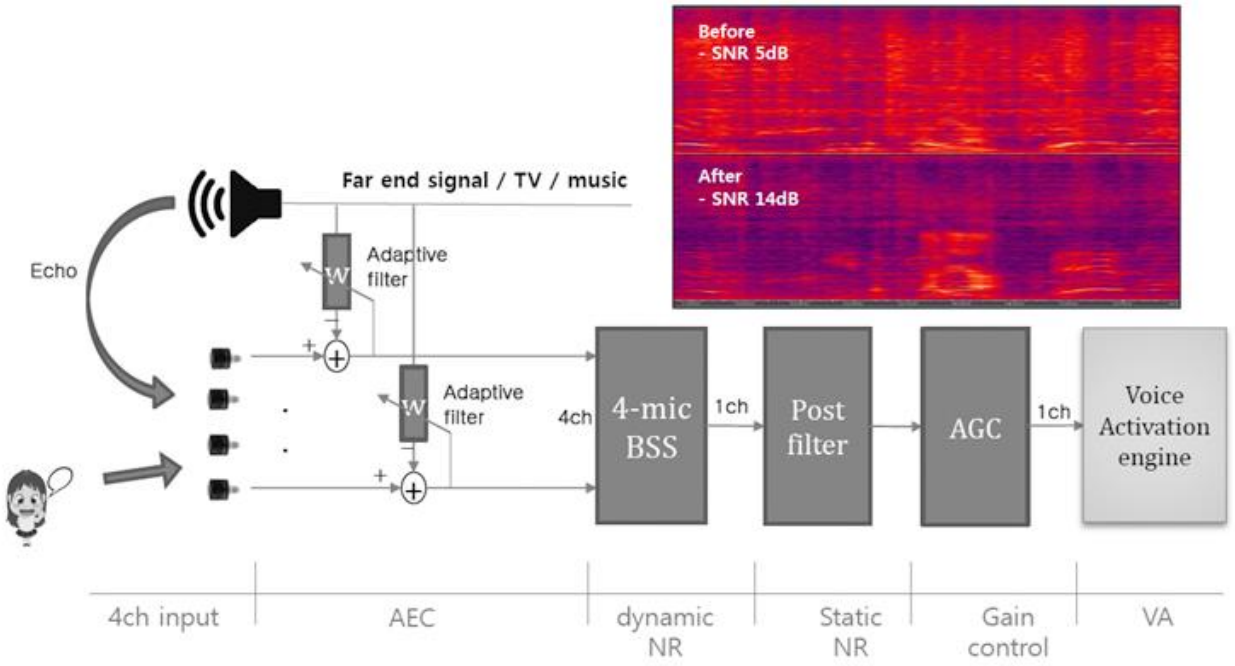
- Real-time Standby Embedded Speech-Recognition Engine



- High Recognition rate of over 90% in real-time noise environment

Technology

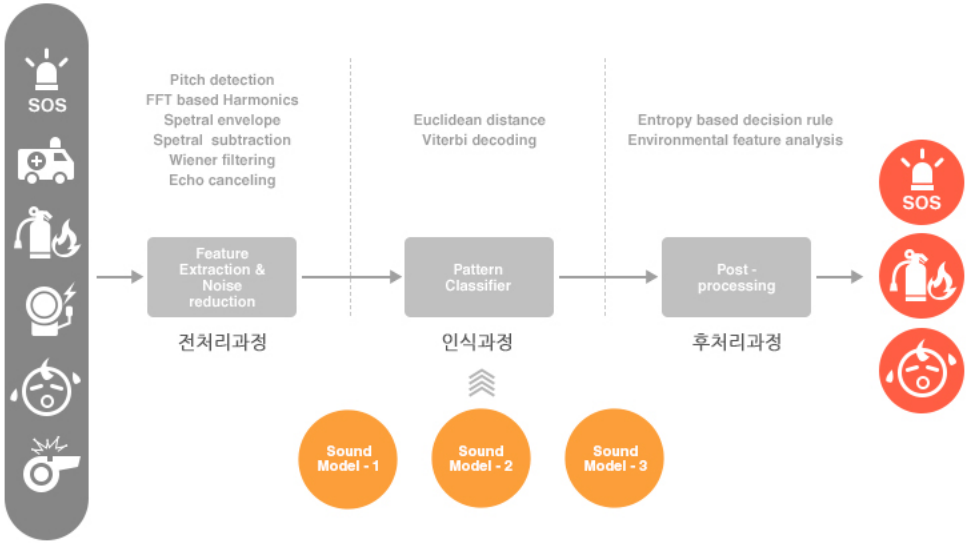
- Pre-processing technology of sound source through real-time noise cancelling



- Real-time noise cancelling & auto-gain correction algorithm through multi-channel BSS(Blind Source Separation) engine

Technology

- Real-time Speech-Recognition Emergency Awareness Technology



- Stochastic model recognition algorithm based on natural frequency pattern analysis of speech and sound
- Establish decision tree and state machine for uncertain emergency situations through crisscross context factor correlation and entropy filtering, knowledge base based emergency situation type information modeling and correlation analysis engine
- Technology that recognizes acoustics that can occur in various emergency situations such as scream, rescue request, etc.
- Used as a precaution against crime and real-time coping in places such as alleys, parks, school, and home

Products

Embedded Speech-Recognition Module(H/W)

** Home IoT Appliances Control
** Emergency Awareness
** Speaker Verification

Voice(Speech-Recognition) Emergency Bell

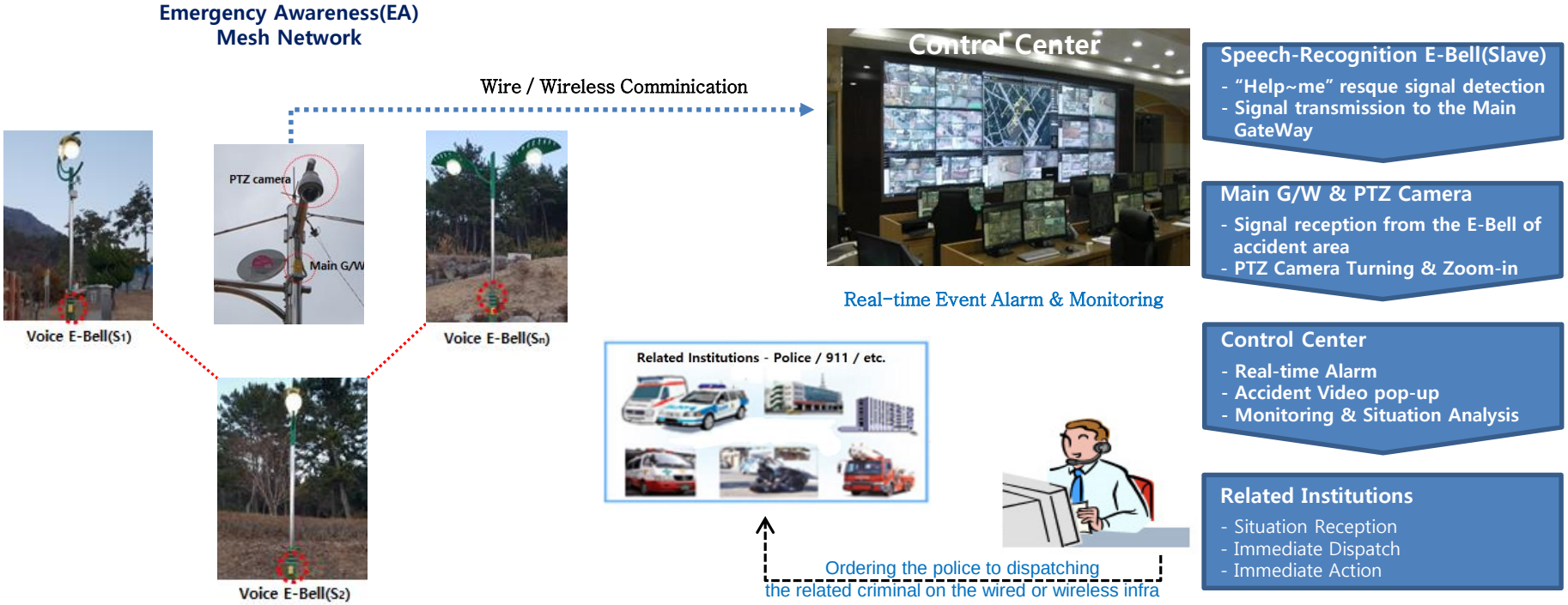
** Voice & Video convergence Surveillance system
** Toilet / Elevator / Basement park / etc.

Intelligent CCTV Camera

Biz model

Master/Slave based Voice & Video convergence Surveillance system

** Patent : Exetended Monitoring Device Using Voice Recognition Module Installed in Multi Spot
** Biz Status : CCTV Manufacturer / Public Local Government / etc.



Biz model

Master/Slave based Voice & Video convergence Surveillance system

>> Comparison

Div.	General CCTV Camera	Motion Detection CCTV Camera	Abnormal Sound Detection CCTV Camera	(Distributed) Voice Detection CCTV Camera
Type & Function	- Fixed/Rotation type - Passive Video Recording	- Fixed(+Rotation) type - The camera rotates when it detects motion of the objects - Alarm/pop-up/monitoring to control center	- Rotation type - The camera rotates when it detects abnormal sound sources such as scream, car crash, etc. - Alarm/pop-up/monitoring to control center	- **Rotation(+Fixed) type** - **The camera rotates when it detects rescue request in emergency situation** - **Alarm/pop-up/monitoring to control center**
Process	Late response to post-processing	Quick response to real-time processing	Quick response to real-time processing	**Quick response to real-time processing**

Biz model

Master/Slave based Voice & Video convergence Surveillance system

>> Comparison

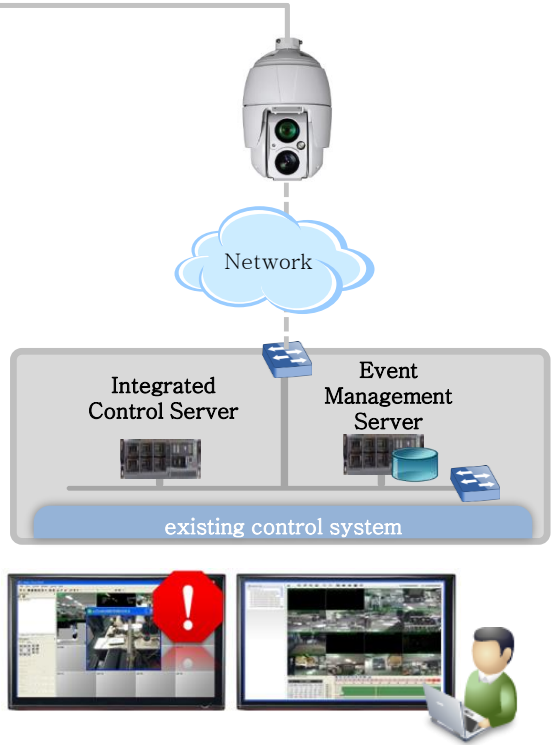
Div.	General CCTV Camera	Motion Detection CCTV Camera	Abnormal Sound Detection CCTV Camera	(Distributed) Voice Detection CCTV Camera
Pros & Cons	- Low cost - Blind spot monitoring is impossible - Recorded video analysis takes a long time when accident occurred (very inefficient) - Decreased manager's concentration	- High cost - No blind spot - The control system may make mistakes when sensing objects in multiple directions on the same time - Decreased manager's concentration by frequent alarms	- High cost - No blind spot - Due to limitations of technology, mistaken detections occurred frequently when sounds over a certain size (Especially, when the wind blows, mistaken alarm occurred frequently) - Only apply to narrow places (Radius of about 20~30m) - Decreased manager's concentration because of frequent alarms	- **High cost** - **No blind spot** - **It makes few mistakes because it only response rescue in emergency situation** - **Very efficient in large areas such as parks or alleys (Radius of about 100m)** - **Improve manager's concentration**

Biz model

Smart Emergency Bell

** Patent : Site Monitoring Method in Network, and Managing Server Used Therein
** Biz Status – Seoul, Incheon, Bucheon, Suncheon, etc. over 500-site for Woman toilet

Voice Emergency Bell



Emergency Awareness

- "Help~me!" / "Police"

Control Center

- Real-time alarm & Pop-up
- Video Monitoring

Immediate Action

- Action through Situation Analysis

Thank you!

BONOICT Co., Ltd.

Headquarters : #C206, DaedeokBizCenter, 17, Techno4-ro, Yuseong-gu, Daejeon, Korea

Seoul Branch office : #1107, Magok Centraltower II, 158, Magokseo-ro, Gangseo-gu, Seoul, Korea

e-mail : bono@bonoict.com T. +82-70-5121-3340