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## The arrival of the digital society hastened by the new coronavirus COVID-19!

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President, Sumito Shimizu

The new coronavirus COVID-19 is a terrifying virus that has given humankind fear of death, social unrest, and a global recession, but ironically, it is also a leader actor in accelerating the arrival of the digital society on a global scale.

By the way, this digital society can be roughly divided into five fields:

(1) IOT network (2) Robot system (3) Remote control (4) AI artificial intelligence (5) 4K to 8K ultra-high-precision video and 5G to 6G ultra-high-speed communication. These fields will unite and be connected with each other closely, and a digital revolution in society like an industrial revolution will make progress in the future.

It is supposed that regarding social issues and problems such as regional revitalization, declining birthrate and aging society, labor shortage, spread of new coronavirus infection, etc., various solutions such as telework, remote control, telemedicine, distance education, autonomous driving of various devices including cars etc., would be developed and provided rapidly from the 2020s by high-speed and low-latency communication network. For this kind of digital innovation of the society how would Uchiya's business deal with, cooperate with and what would the business strategy and tactics of Uchiya be. Then I would like to explain the position and future potential (next 10 years, no 20 years) of a bimetal thermostat, which is an analog technology, for the rapidly advancing digital society.



The purposes of all the work performed in ① to ⑤ have been achieved by the mechanism that hardware(machines, electric motors, solenoids, cylinders, electric heaters, etc. combined equipment, devices, equipment, etc.) is operated and performed by electronic control (software) of semiconductors. The main business field of Uchiya in the past has been the one of temperature protection of electric

motors, power transformers, reactor magnetic solenoids, etc. and overheat protection of heater and so on.

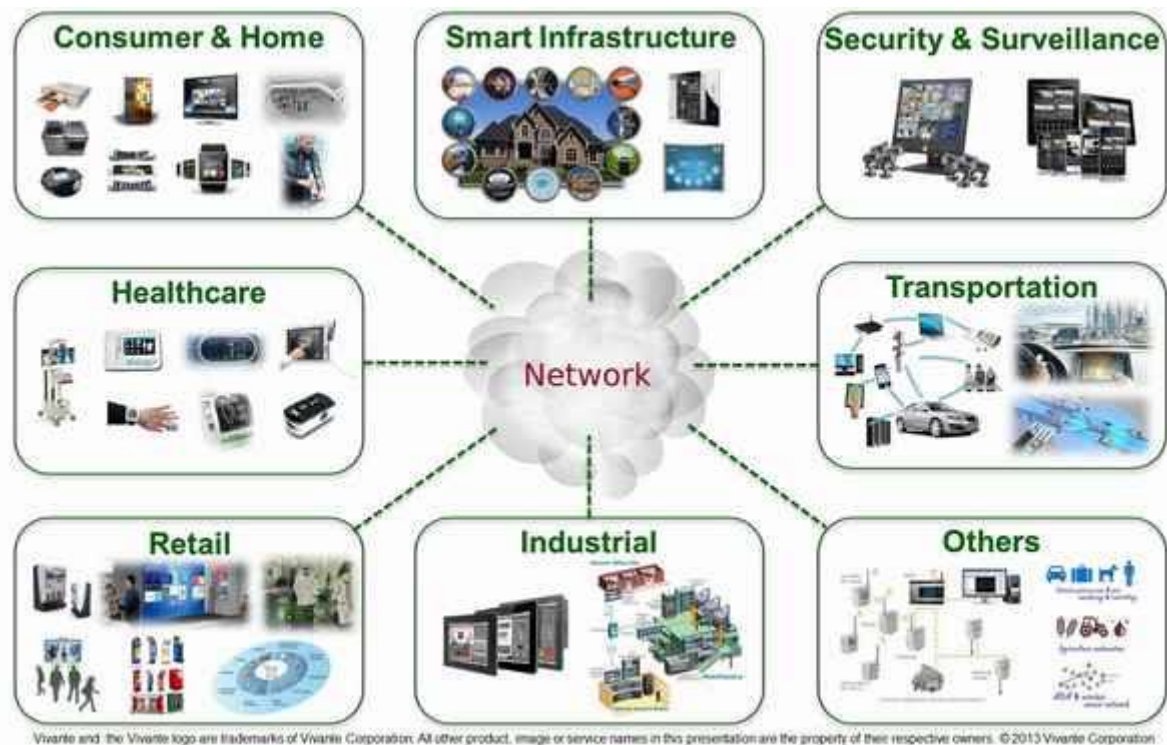
However in the digital reform,

(1) Temperature protection of semiconductor element supporting electronic control would be getting more important as a new market. It is an important key to make the importance of the existence of thermostats function fully for Uchiya not be left behind in this reform and as a survival countermeasure. Because in the future each temperature protection of equipment(hardware) would come into the category of electronic control.

(2) The further key word as a new marketing strategy is that when electronic control has an abnormality, a mechanical type of bimetallic thermostat with a different function prevents the runaway of equipment and furthermore backs it up. We have to develop a market and make a sales promotion with a characteristic alternative function. To achieve the goal it is not enough for our thermostats to have just a protector function (equivalent function to thermal fuses) it should have an alternative function to temperature control instead of electronic control temporarily.

It is essential that they could have the function which could work in a low direct voltage and minute current circuit with an opening & closing high durability. Within three years we are going to put to the market three kind of products(low, middle and high temperature zone).

Uchiya has already started to provide the products(EP and JP Series) which could protect semiconductor elements themselves(1). We need to make the sales strategy uphold thoroughly and expand the temperature zones(low temperature, minimum -10°C, middle temperature and high temperature, maximum 180°C).



(3) As a tactic, it is necessary that within 3 to 5 years we should have a product line-up of an electronic board-mounted type of thermostat and a type of thermostat which could be packed with it an automatically mountable.

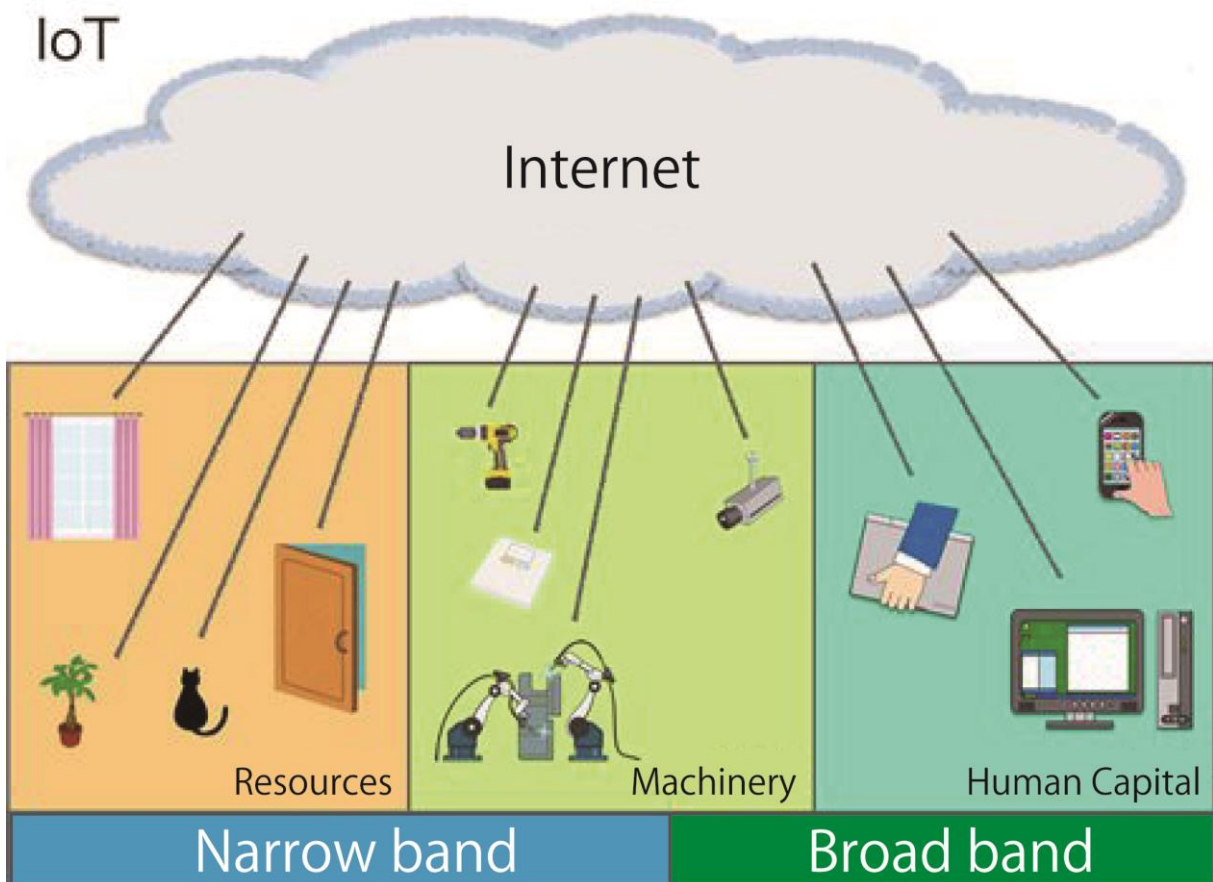
The greatest strategic significance is that the products of Uchiya could make signals open and close signals in DC electronic circuit(low voltage and minute current). Uchiya can contribute to society in a sense that our products could prevent robots & electronic, electrical equipment from losing their functions by acting in a short period instead of electronic control as a back-up of digital equipment. Stopping equipment operation is not only the supply of safety, but it is also the supply of safety to make the functional purpose of equipment completed.

(4) Uchiya needs to integrate this semiconductor element and the bimetal thermostat into a modular module over the next 10 to 20 years. Specifically we are going to promote to integrate our thermostats with condenser, power semiconductors, and the business to use bimetallic thermostats & electronic control/protection systems.

### ① IOT Network

IOT Network means that it could make not only information and communication devices such as computers, but also various objects(things) existing in the world have communication functions, and by connecting to the Internet and communicating with each other, automatic recognition, automatic control, remote measurement, etc. could be performed.

It is possible to collect data for the position information of things, the state of things (for example the remaining amount of batteries and fuel), and the state of the surrounding environment(for example, weather and temperature) by attaching a sensor. By sending information through a communication network from the sensor, we could confirm data and status and accumulate DATA for information collection through a personal computer without going to the site.



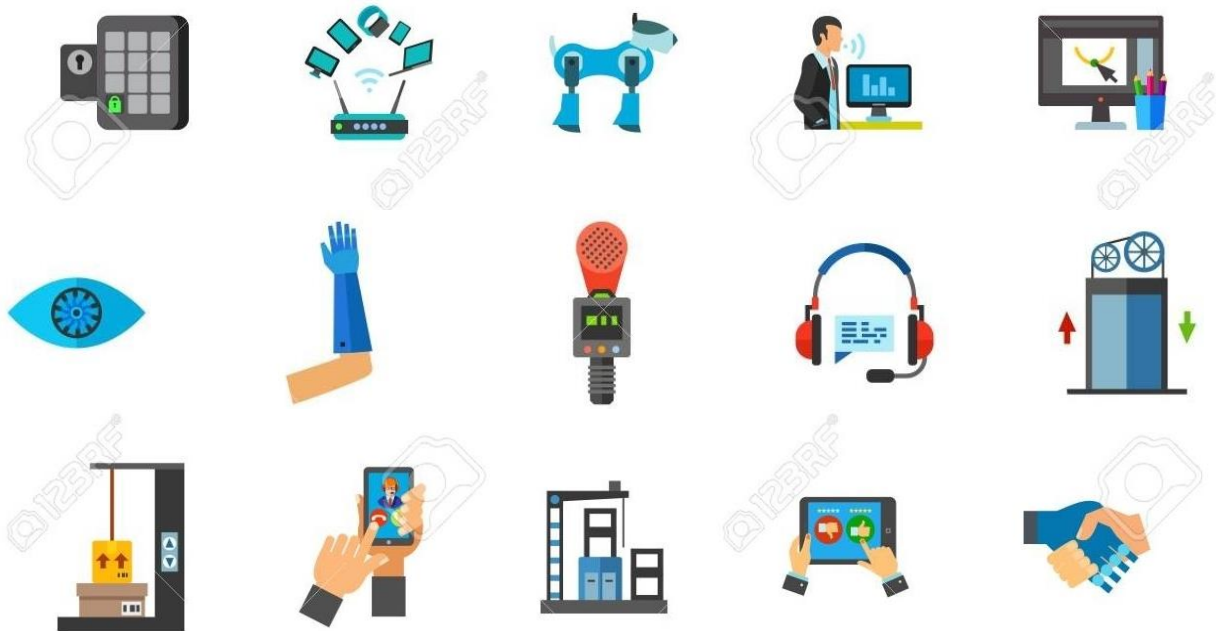
### ② Robot System

Devices that support humans through machines, electricity, computers, etc. with judgment and learning functions are generally called robots. At present various robots are currently active in a wide range of fields from industrial robots to service robots. We can build(combine)functions that suit purposes of human thanks to robot technology.

### ③ Remote Control

Labor shortages due to the declining birthrate and aging population, ensuring "safety" due to the recent Corona Shock, and the need for constructing the structure to continue social activities have been caused. We are going to solve some problems for them by integrating remote control using IOT network with robot system(integrating with ①, ② and ③). For example remote monitoring of elevators, vending machines, merchandise management in convenience stores, IT agriculture and livestock management. The remote control technology will complement the relationship between humans and machines, and remote control robots will be used in the field of more advanced tasks than ever before.





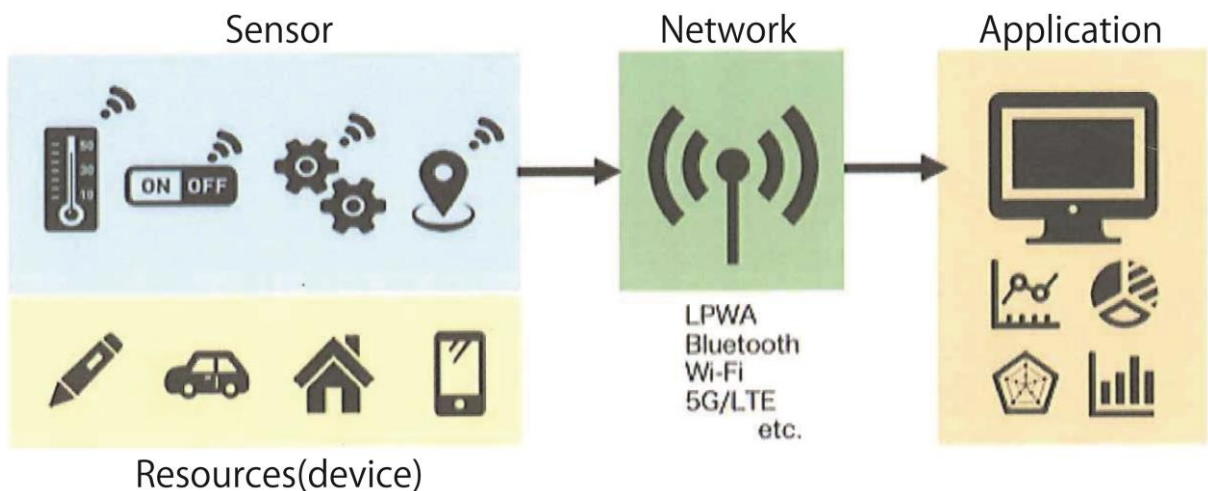
④ AI(The age of artificial intelligence)

Artificial Intelligence(AI) is what a machine could perform intellectual actions, which could be done only by humans, such as language understanding, reasoning, and solving problems. Artificial intelligence(AI) is a part of human intellectual activity which is reproduced artificially through software. By learning from experience and adapting to new inputs, it can complete jobs flexibly as humans do. The era is coming soon that remote control, robot systems and IOT networks will be integrated and their operations will be managed by AI.

⑤ 4K, 8K and 5G, 6G Generations

So-called "Full HD" in the current terrestrial digital broadcasting, satellite broadcasting and television receivers has a super high definition image. 4K has  $3840 \times 2160 = 8$  million pixels in width and length and the next-generation 8K has  $8000 \times 4000 = 32$  million pixels. It is also called "Super Hi-Vision (SHV)". At present it is considered to be the final form of the television system and it will reach the clearest level.

The major features of 5G are an ultra-high speed, massive Machine Type Communications, and High-resolution video distribution such as 4K and 8K by ultra-high speed, widespread use of IoT by ultra large number of simultaneous connections, improvement of automatic driving accuracy by an ultra-low latency, and remote treatment would be possible. The meaning of Generation is "generation". In short 5G means "fifth generation". 8K and 6G could provide a complete environment of the integration of ① to ④ as above.



Total sales will reach twelve trillion yen in 2022 !  
IoT market has been growing rapidly

End