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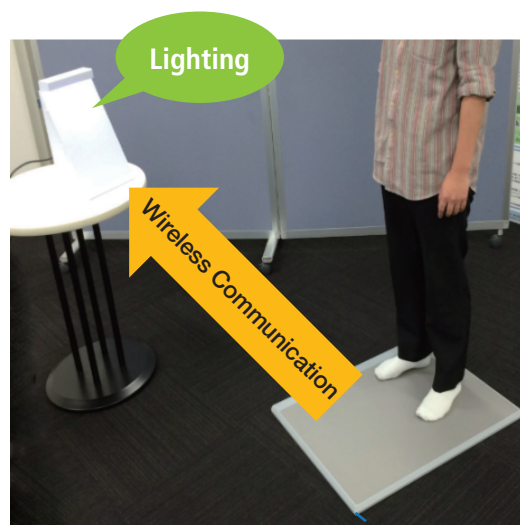
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## Purpose of Research

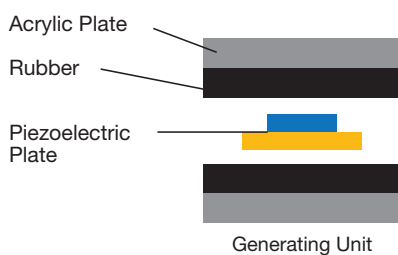
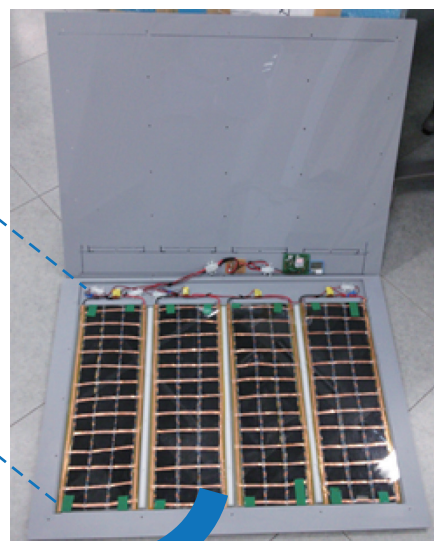
To develop a monitoring system in order to solve problems of graying society and social anxiety, and to implement a simple diagnosis system for aging infrastructure.

## Summary of Research

We have developed a mat generating electricity with a force brought by human or automobile passing on the mat. This technology can provide various pieces of information associated with walking or traffic via wireless communication using the electricity generated by such mat “without a battery or a wiring.”



Mat Type Generation/  
Communication Device



## Comparison with Conventional or Competitive Technology

A battery has been generally used when sensor information needs to be sent by wireless. However, it is able to supply electricity to the wireless communication element almost permanently without charging or replacing the battery by employing this technology.

## Expected Applications

- Walking sensor mat for monitoring hospital patients or persons in need of in-house nursing care (available to be adopted even at a location where a human-body detecting infrared sensor cannot be installed)
- Automatic door
- Alarm/warning system for roadways, platforms or plants

## Challenges in Implementation

Application method and communication device/protocol should be developed and improved to establish more stable transmission.

## What We Expect from Companies

Undertake collaborate projects for improving the wireless communication device/protocol, and for proving benefits to create use cases.

## Points

- Capable of sending sensor information semipermanently at a location where the battery is difficult to be charged or replaced
- Provide a wireless communication system operable independently even at the time of a disaster or emergency
- Available to be employed under cryogenic, high-temperature or vacuum environment where the battery is difficult to be used (the piezoelectric materials can generate electricity in a high-temperature region covering from ultralow temperature to several hundred degrees)

## Future Developments

Researches will be proceeded to improve wireless communication distance and traffic with upgraded characteristics, and to attain miniaturization and light-weighting.

## ■ Intellectual Property:

Japanese Patent Application No. 2014-238235 “Generator”

