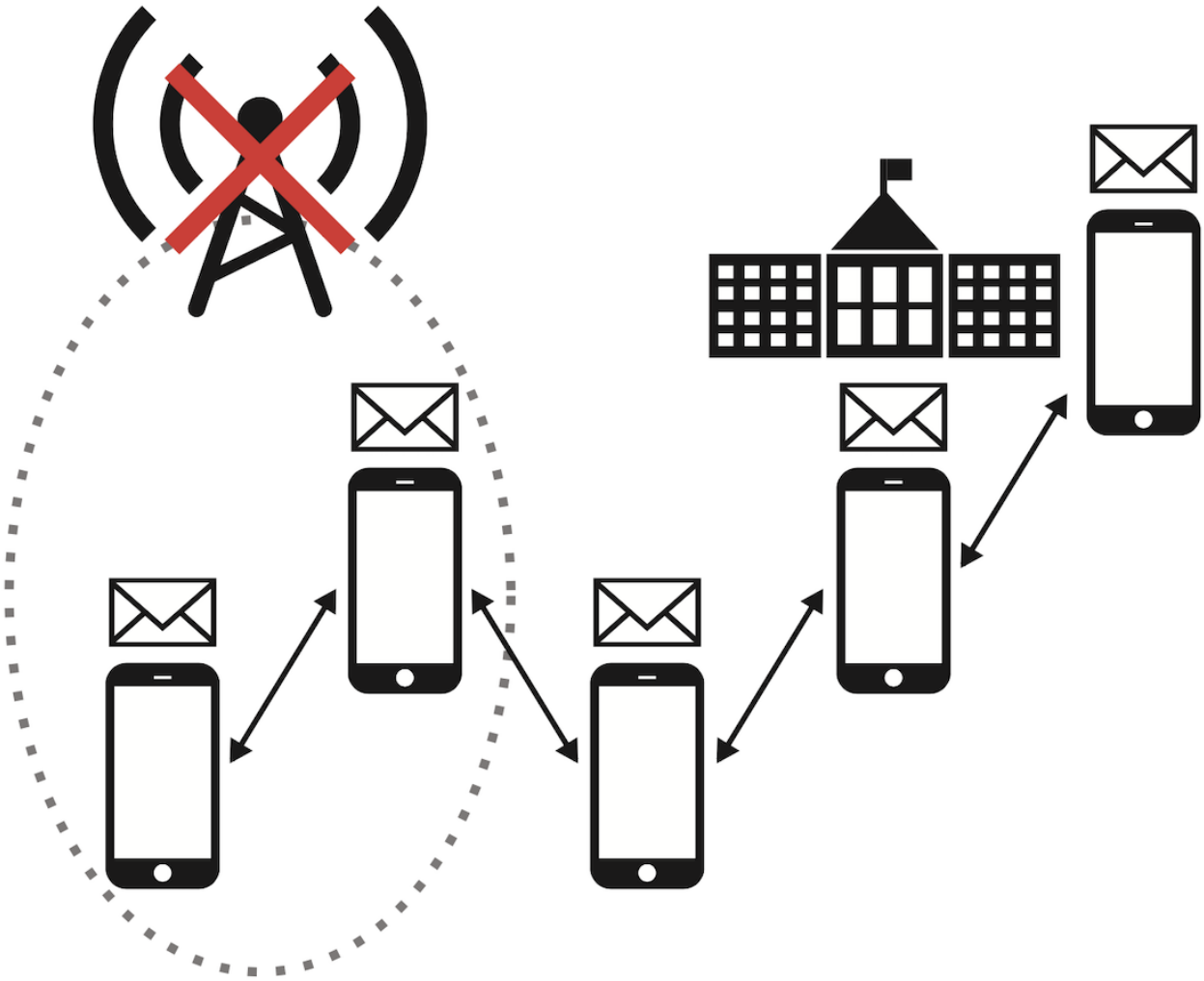
構造計画研究所
KOZO KEIKAKU ENGINEERING Inc.

Relay-by-Smartphone

Off-the-grid smartphone communication technology



Hazard

Earthquake Tsunami Land Slide Cyclone Storm Surge Flood Drought Volcano Wild Fire Tornado Heat Wave Cold Wave Avalanche Lightning

Solution Purpose

Prevention & Mitigation Preparedness Response Recovery

Solution Theme

Information & Communication Technology Rescue & Medical Treatment

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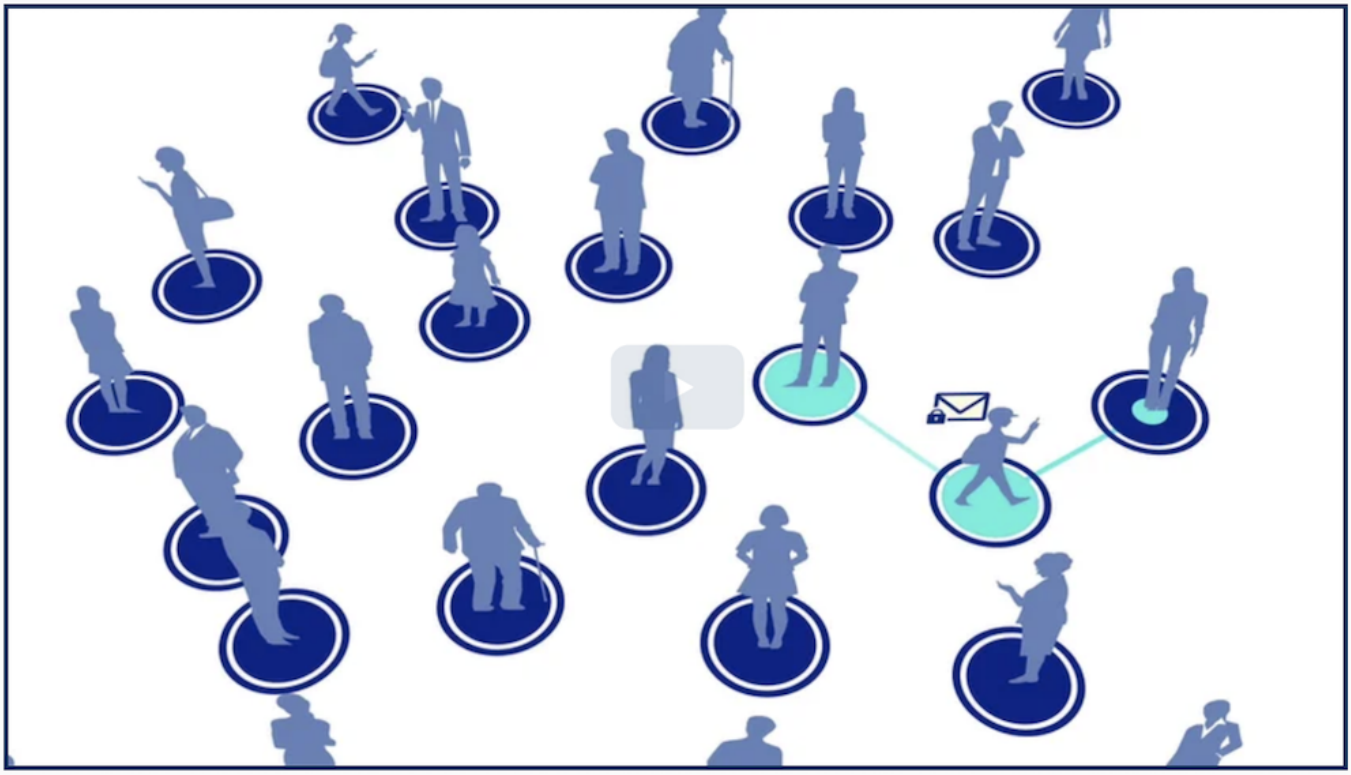
Technology Subject

Information Gathering Information Communication Information Platform Emergency Rescue Operation

Advantages

“Relay-by-Smartphone” is a system that enables communication between smartphones even in places lacking telecommunications infrastructure by relaying communications between smartphones utilizing their own built-in direct communication medium, such as D2D Wi-Fi and Bluetooth. The core technology, the ad-hoc communication technology, was originally developed by the Kato and Nishiyama Laboratory at Tohoku University and then improved and further developed by Kozo Keikaku Engineering for social implementation.

Solution Illustrated



As a solution for collecting and transmitting information when communication networks are cut off, Relay-by-Smartphone enables the collection of information such as safety status and transmits it to evacuation centers even when normal communications are unavailable due to a disaster or other reasons.

Background

During the Great East Japan Earthquake in 2011, communications were cut off, making it impossible to collect the necessary information. Securing a means of communication is extremely important for grasping the extent of the damage and for conducting rapid relief efforts.

Learning from this experience, Professor Hiroki Nishiyama of Tohoku University devised the idea of Relay-by-Smartphone and then co-developed it with Kozo Keikaku Engineering.

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Exposition of the Solution

Even in a situation where communication infrastructure is unavailable due to a disaster, many people can connect their smartphones and join forces to create a network, which is what we call "mutual-aid" style telecommunication.

Relay-by-Smarphone is integrated in an app to transmit information between smartphones.

Data files such as messages and photos are sent directly to nearby smartphones using radio waves such as Bluetooth LE. The smartphone that receives the data searches for other smartphones in the vicinity and forwards the received data. In this way, data is passed from smartphone to smartphone in a bucket brigade style, even as the smartphone holder moves around, enabling the collection and distribution of information that is not dependent on existing communication infrastructure.

Achievements of Examples

https://www.smart-relay.kke.co.jp/case

Other References

- Contact

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