Proposal of indoor evacuation system with smartphones

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1. Introduction

When a disaster happens,

- People in a building have to escape as quickly as possible
- ***Power failure*** may occur and prevent people from escaping

Blackout

Hard to see emergency signs

Darkened passages with danger of falling

In a blackouted building.

- ***The emergency exit signs are hard to see*** or understand
- There is ***danger of falling and getting injured***

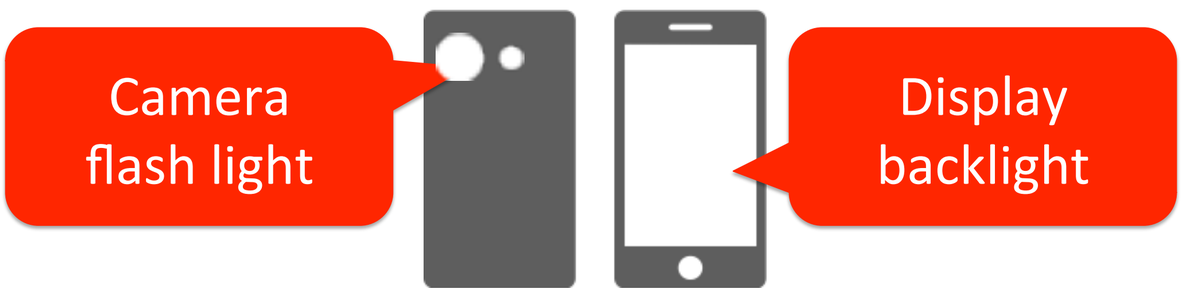
As a result, ***people take long time to escape***.

2. Our proposal

- Some studies proposed indoor evacuation systems that provide information may be easier to understand
- ***Little study has been done to illuminate passages to help people escaping***

Our research group has proposed an indoor evacuation system ***that provides information of the evacuation routes and illuminates the passages at the same time***.

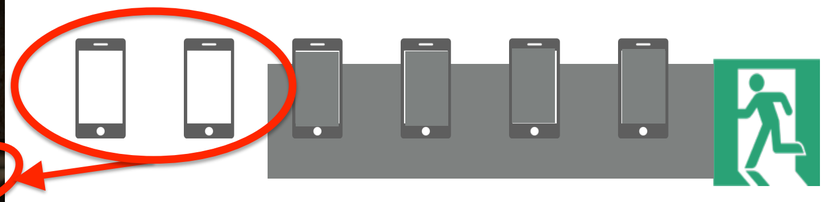
Our system utilizes ***smartphones with the built-in flash lights*** owned by the people.

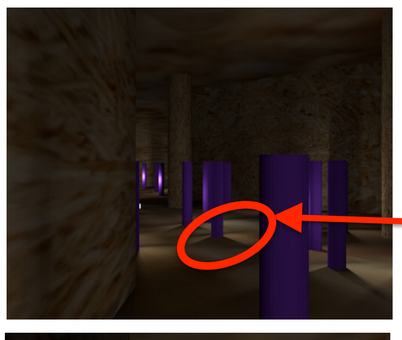


Our system

- Illuminates passages by ***turning light on***
- Indicates evacuation routes by ***making each built-in light blinks***

Time #1





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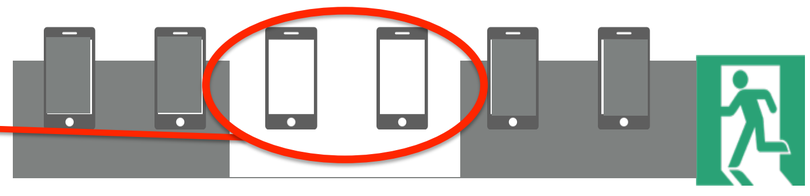

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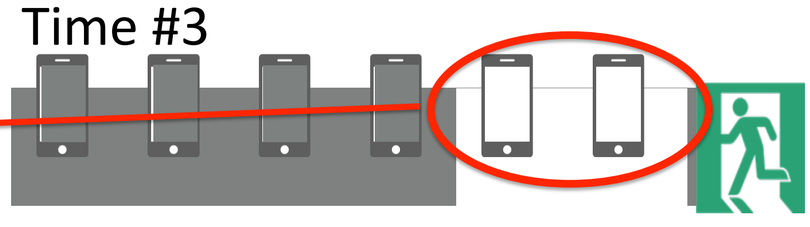


3. Previous work

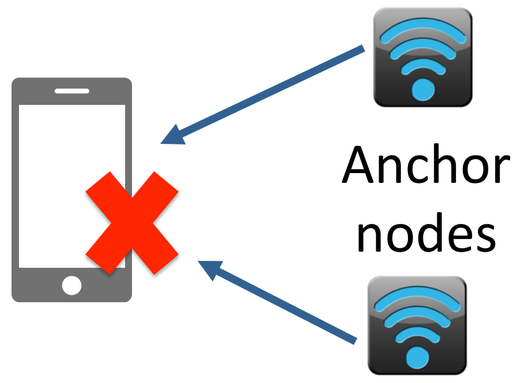
We generated 3D and 2D CG animations by the computer simulations of our system and made participants watch the animations.

➢ **80%** of participants responded that the system works well.

4. Future work

- In order to implement our system, ***a positioning method*** is needed
- We adopt the ***Received Signal Strength Indicator (RSSI)-based method***
- In typical methods, a device measures RSSI of signals from anchor nodes.

However, in some smartphone models, ***acquiring RSSI value is forbidden***.



➢ Typical methods cannot be utilized for some smartphone models. We now tackle ***the development of a new method***.

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