I want my Mommy

Using Wireless Research to limit the number of lost people

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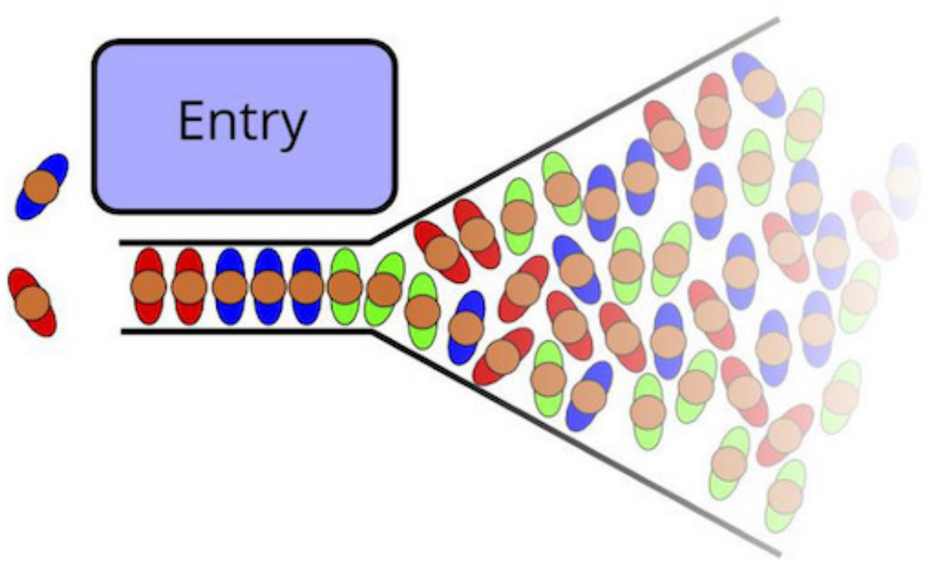
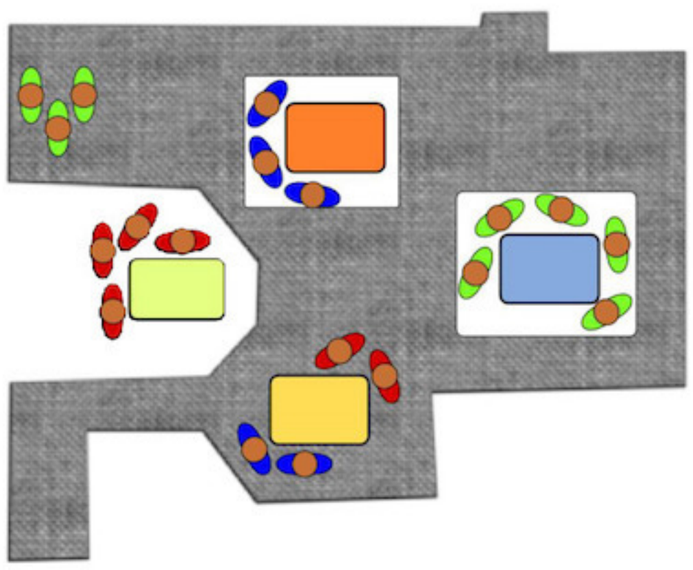
Abstract

"I want my Mommy" is a research project that aims to use wireless technologies such as Bluetooth and Wi-Fi to quickly locate people in a large crowd, subsequently reducing the number of lost people. In several crowded areas such as Makkah and Disneyland, people getting separated(specially children and elderly) from their families is a huge problem. This is currently handled manually by making announcements or giving people tags with information written on them. Unfortunately, these solutions do not work in highly crowded areas, both because of the number of people entering the location, and because of the size of these places. We plan to devise an algorithm using commonly existing wireless technologies to reduce the number of lost people by categorizing the crowd into groups without any barrier-to-entry.

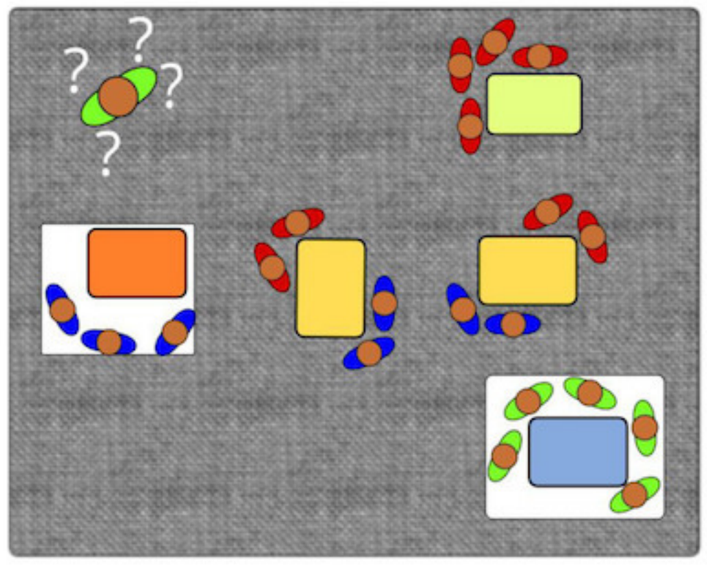
Problem



- Crowded places generally have a lot of people entering the premises
- Identifying groups at this point is time consuming, and is a barrier to entry

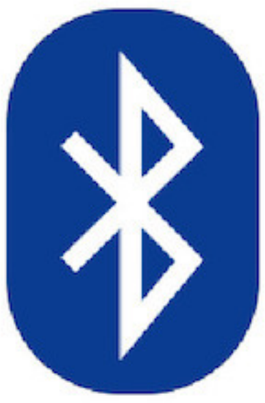


- People spend most of their time with their respective groups
- The time spent with the group initially is not used for the classification of an individual's "neighbors"



- A lost person is unable to locate his/her group in the large crowd due to lack of infrastructure
- Manual announcements/ non-electronic tagging is used that is not very effective

Solution



- Identify an individual's "neighbors" based on the proximity in the crowded area and the time of contact by using Bluetooth
- Use the Wi-Fi of the individual's wireless device (Android phone in our experiment) to get the latest location of the individual and periodically send it to the server
- Find the best way to categorize people into groups by using the information from the wireless device and provide them with the way of reaching out to them when lost

Experiment

- Android phones are being used by 20 students of CMUQ for Wireless research and their wireless data is continuously being collected for analysis
- Both the location (with respect to the access points) and the proximity of an individual to his/her neighbors helps in the classification of groups
- The experiment will be performed with a larger group of students after preliminary results to simulate a crowded area

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