

A Location-Aided Flooding Mechanism in Community-based IoT Networks

ABSTRACT

Many countries are facing to various social issues in aged population, healthcare, disaster reduction/prevention, safety, security, etc. The concept of smart city that utilizes the Internet-of-Things (IoT) technologies to strengthen social infrastructures opens a new door for innovative solutions to the aforementioned issues and also creates a big commercial market. This paper proposes a location-aided flooding mechanism to disseminate data in community-based IoT networks. Inspired by two heuristics obtained from the analysis of optimal flooding problem, the proposed mechanism allows wireless nodes to cancel a duplicate packet transmission in a distributed way when all of their neighbors have received that packet in advance. Extensive evaluations have been done in two different scenarios, i.e., a random uniform distribution of wireless nodes and a real distribution of wireless nodes in the Sumida ward of Tokyo. It has been validated that the proposed mechanism is not only able to increase the success ratio of data delivery, but also capable of reducing the delay of data delivery significantly, e.g., in the best case, the proposed mechanism improves the success ratio of conventional mechanisms by 47.3% and reduces the delivery delay by 92.0%.

EXISTING SYSTEM

Many countries are facing to various social issues in aged population, healthcare, disaster reduction/prevention, safety, security, etc. If anything happened to the elderly people they need emergency help which may not be provided. Children are usually play outside they need to monitored always which is not possible. Any disaster reduction works may not be monitored by the government. All these are problems of the existing system.

DRAWBACKS

- It doesn't provide safety/security.
- Nursing care may not be provided.

PROPOSED SYSTEM

This paper proposes a location-aided flooding mechanism to disseminate data in community-based IoT networks. Inspired by two heuristics obtained from the analysis of optimal flooding problem, the proposed mechanism allows wireless nodes to cancel a duplicate packet transmission in a distributed way when all of their neighbors have received that packet in advance. Extensive evaluations have been done in two different scenarios, i.e., a random uniform distribution of wireless nodes and a real distribution of wireless nodes in the Sumida ward of Tokyo. It has been validated that the proposed mechanism is not only able to increase the success ratio of data delivery, but also capable of reducing the delay of data delivery significantly, e.g., in the best case, the proposed mechanism improves the success ratio of conventional mechanisms by 47.3% and reduces the delivery delay by 92.0%.

ADVANTAGES

- It provides security.
- Any rescue operations/prevention operations are done quickly.

SYSTEM REQUIREMENTS

H/W System Configuration:-

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|-------------|-----------------------------|
| ➤ Processor | - Pentium –IV |
| ➤ RAM | - 4 GB (min) |
| ➤ Hard Disk | - 20 GB |
| ➤ Key Board | - Standard Windows Keyboard |
| ➤ Mouse | - Two or Three Button Mouse |
| ➤ Monitor | - SVGA |

S/W System Configuration:-

- Operating System : Windows 7 or 8 32 bit
- Application Server : Tomcat5.0/6.X
- Programming Language : Java
- Java Version : JDK 1.6 and above