Survivable Social Network on a Chip
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Background

Problem Statement

- In situation of a disaster, communication networks go down causing disruptions. At such times, alternate modes of communication are needed.
- For example, as a direct consequence of the Loma Prieta earthquake in 1989, 154 of 160 telephone central offices in Northern California lost primary power, and some of them lost the power backups as well.

Solution Overview

- The Survivable Social Network on a Chip (SSNoC) helps communities in disaster situations by acting as a communications hub sitting on a low power, embedded system.
- Users can exchange messages, share their location and current status.
- The system is designed to work as a standalone unit. It can be available for extended periods even during power outages.

System Architecture

User Interface
- Deployed on BeagleBone Black
- Non Blocking I/O Server
- RESTful API

SSNoC
- Update User Status
- Chat In Private
- Send Public Messages
- Administer Node

Service Features
- View Announcements
- Search for People

System Features and Future Work

System Features

- Low power consumption
- Wireless accessibility
- Usable on mobile, tablet or computers
- Works out-of-the-box
- Rugged and easy to setup

Future Work

- Improve usability
- Support for voice & video calling
- System monitoring
- Track resource utilization
- Trace power consumption

The X Factor

This system will be used as a project component for Foundations of Software Engineering course at CMUSV starting Fall 2014.