

Albert-Ludwigs-Universität Freiburg



Real-Time deployment of Multihop Relays for Range Extension

Of

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Outline



- Keywords
- Introduction
- Related work
- Relay Deployment Strategy
- Link Assessment
- Algorithm
- Prototype
- Experiments
- Conclusion



Keywords

- Deployment
- Multihop wireless networks
- First responders
- Breadcrumbs
- Sensors
- RFID



Introduction

- Reliable communication
- Lose of radio communications
- Multihop wireless communication
- Key Challenge



Related work

- UC Berkeley & Chicago Fire Department
- Virginia Tech & SAIC
- Fire WxNet – Wildland fire environments

Related work & Relations

- UC Berkeley & Chicago Fire Department
 - Wireless sensor network (Smoke Net)
 - MICA2 mote



- Contrast – No nodes



Related work & Relations

- Virginia Tech & SAIC (LMDS)
 - Wider incident area
 - LMDS (Local Multi point Distribution Service)
 - GIS (Geographic information service)
- Similar
 - Broadband channel
 - Temporal Characteristics and symmetry



Related work & Relations

- Fire WxNet – Wildland fire environments
 - Wireless sensor system
 - Verification
- Relation
 - Link characterization studies
 - Local placement assistance



Coming up later...

- Relay Deployment Strategy
- Link Assessment
- Algorithm
- Prototype
- Experiments



Coming up later...

- Relay Deployment Strategy

- Link Assessment
 - RSS-Based Link Assessment
 - Receiver height
 - Link symmetry



Coming up later...

- Algorithm
 - Parameter Selection
 - Adaptive probing
 - Local Placement Assistance
- Prototype
 - Application Overview
 - Prototype Hardware
 - Routing Protocol



Coming up later...

- Experiments
 - Experimental Trials



Targets

- Need of rapid deployment
- Feasibility – Automated deployment
- Come up with - Algorithm
- Experimental Analysis
- Reach hard areas.



In Final presentation....

- Relay Deployment Strategy
- Link Assessment
- Algorithm
- Prototype
- Experiments