Real-time spatial audio on the Internet of Things

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Challenge

Use IoT device speakers to create a fabric of spatial audio for virtual sound placement in living/working spaces

Solution

- Model spatial audio propagation
- Use time-domain crosstalk-cancellation to provide binaural audio over IoT loudspeakers
- Real-time 3D Engine integration for dynamic virtual sound synthesis, distributed over networked speakers

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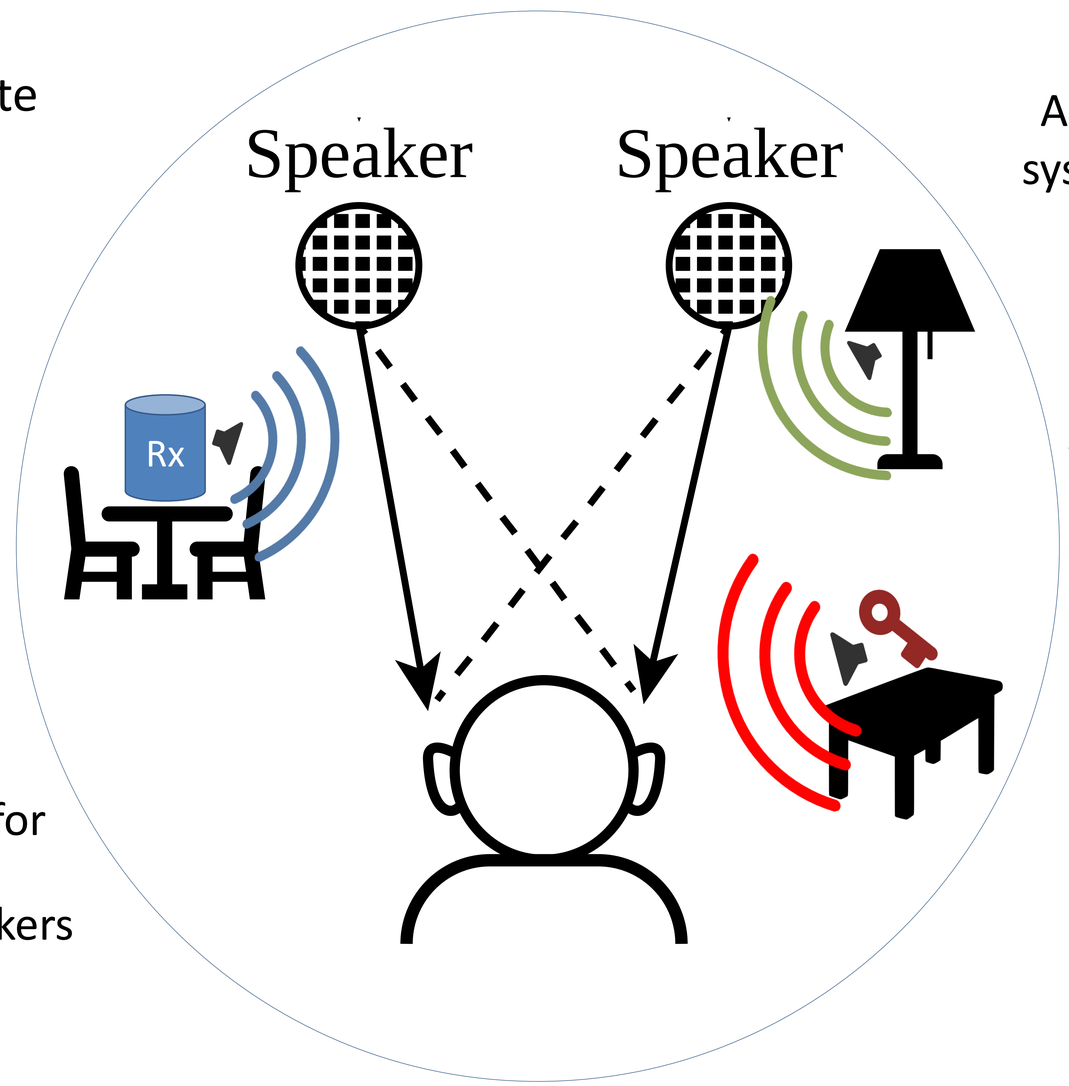

Scientific Impact

Advanced real-time spatial audio systems will create new platforms for immersive mixed virtual-physical environments

Broader Impact

Virtually positioned audio will transform our living spaces

- Connecting physical world with virtual programmability
- Guiding us where needed through virtual assistance
  - –Task-oriented navigation
  - –First responder navigation