Bringing Internet access to disconnected populations with smartphones and opportunistic communication

Background :
Due to the high cost and the lack of Internet infrastructure in many disconnected populations, relying on opportunistic networks to reach these regions is a potential solution. This novel type of networks uses today's mobile phones capability to communicate directly via Bluetooth or WiFi Direct without requiring any supporting network infrastructure. Whenever two phones are within radio transmission range of one another, they have the opportunity to exchange data (emails, podcasts, videos, tweets), which are stored locally and carried around as people move and disseminated further to others. Thanks to mobility, content is forwarded to the best relays to bring data closer to the destination.
In this context, several routing protocols have been proposed to choose the best relays that would bring data closer to the destination. In particular, geographic routing and social-based routing.

Thesis Goal :
The goal of this project is to :

- Study different routing schemes (Geographic, social routing, etc.) to assure efficient routing of data from/to disconnected areas.
- Design and Implement a hybrid protocol stack/SDK that combines opportunistic and 3G communications for smartphones.
- Evaluate and validate the implementation by running experiments with Android phones.

Kind of Work: theory, implementation, evaluation
Requirements: Java on Android (even beginner) , networking basics, wireless network

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