

FoneAstra: Making Mobile Phones Smarter

GOAL: remote sensing using cost-effective and energy-efficient commodity mobile phones

Motivation

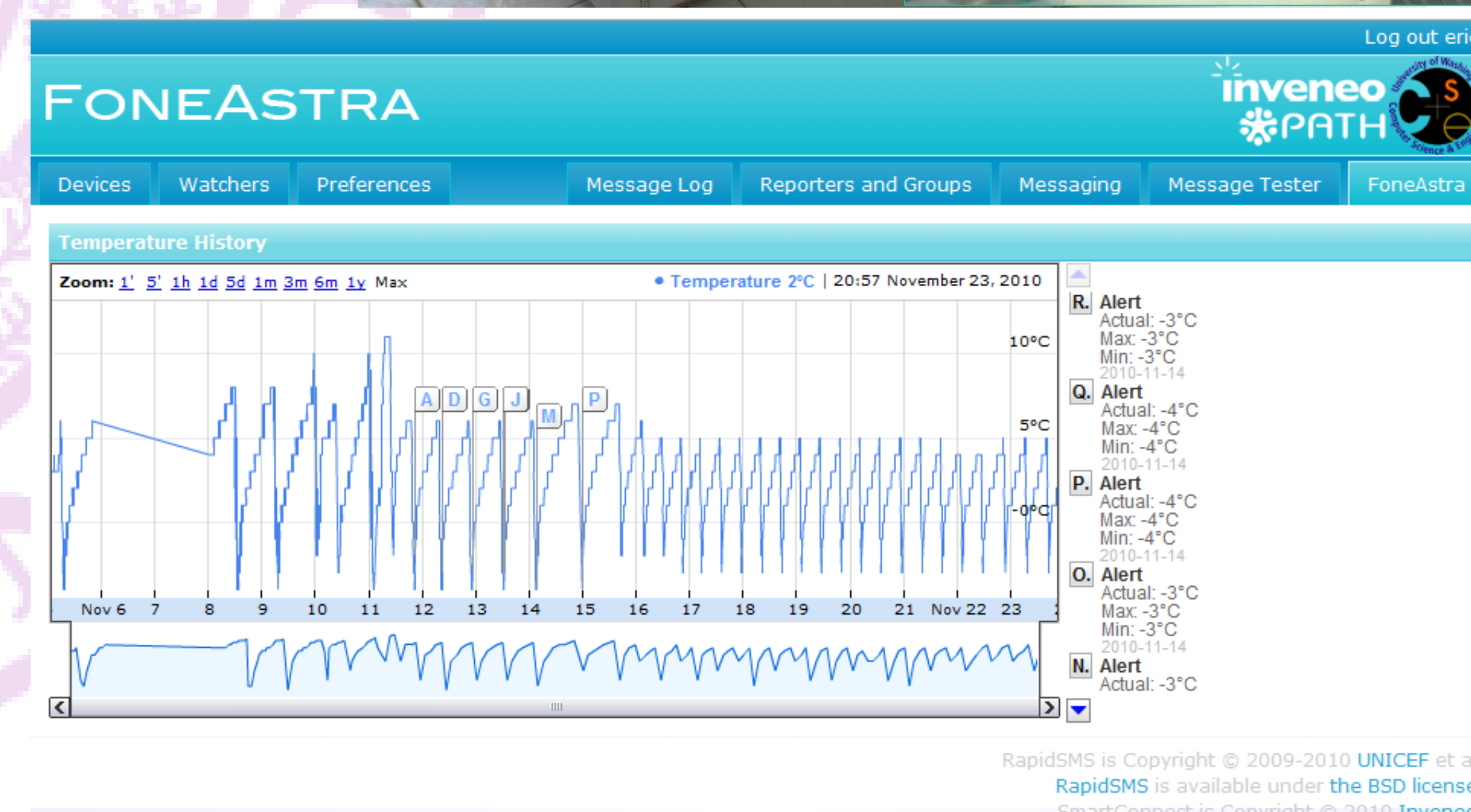
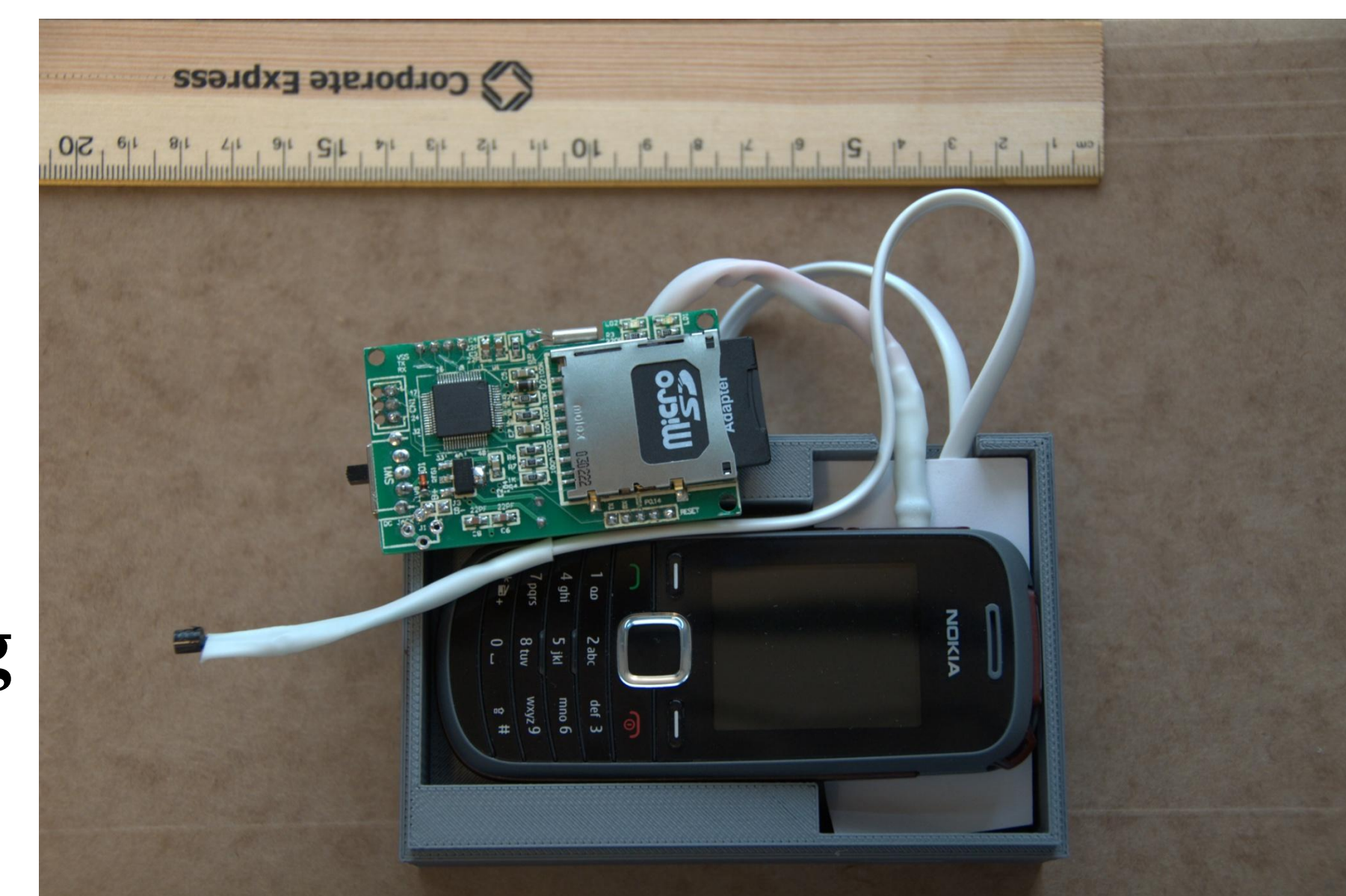
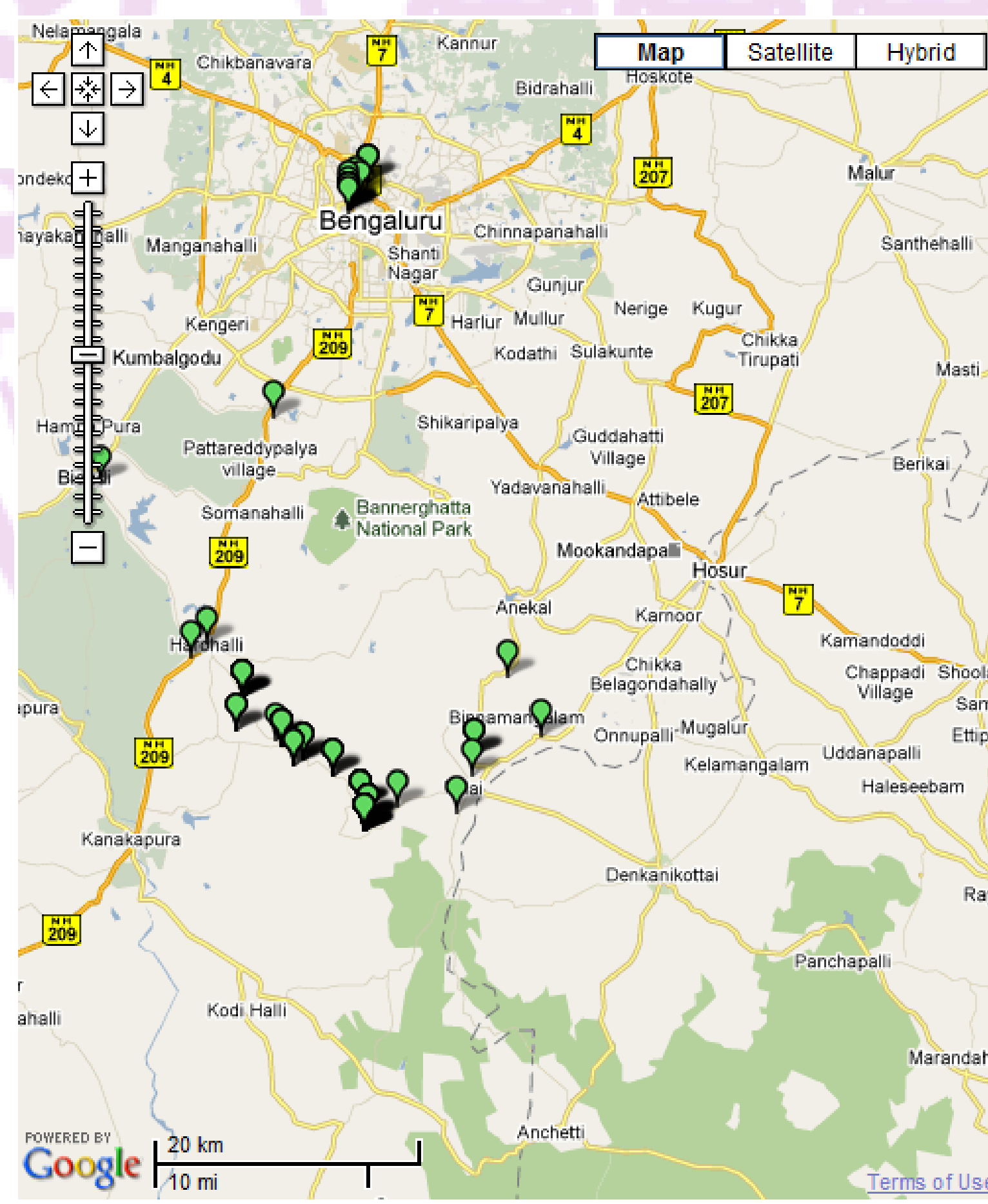
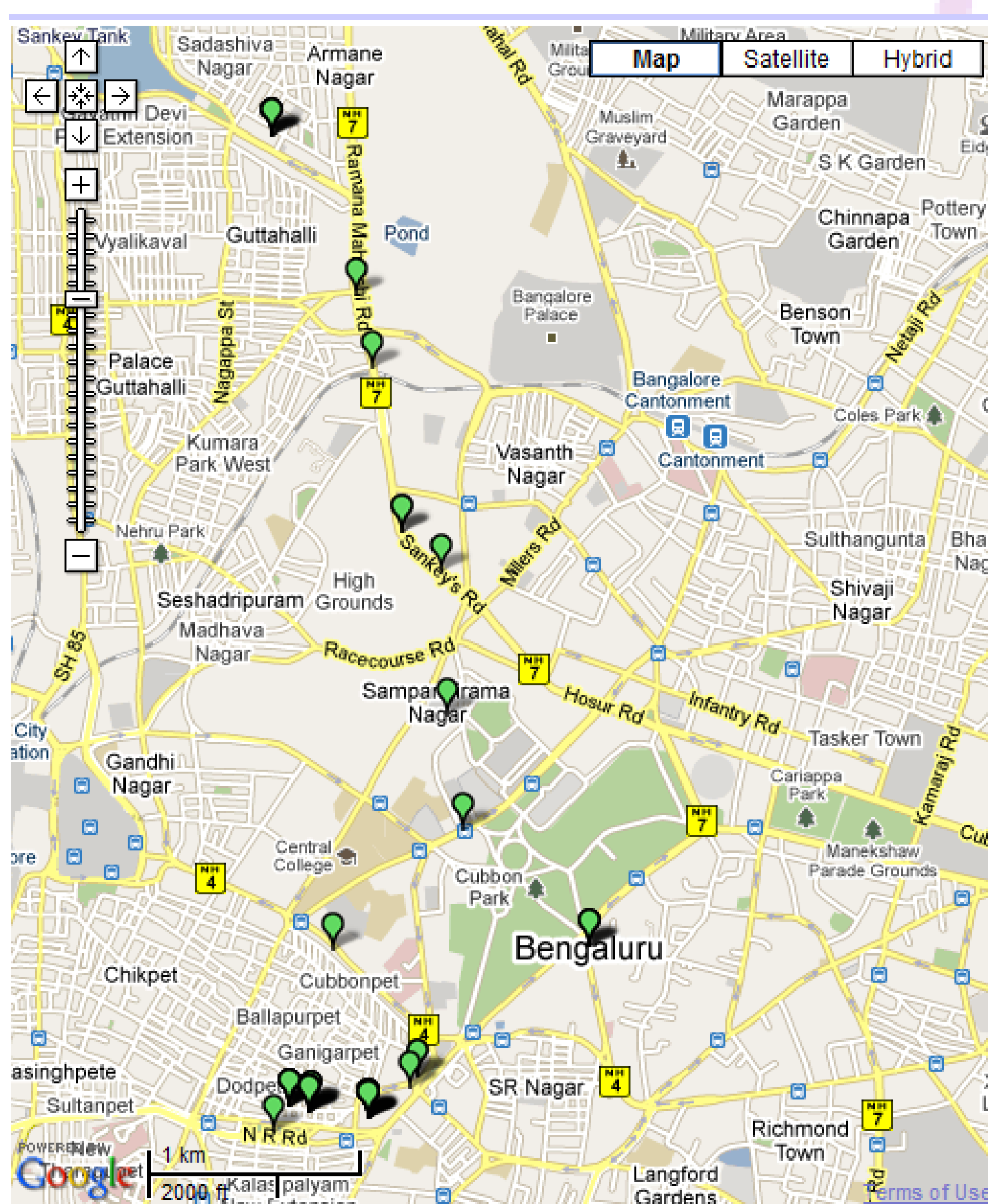
- Mobile phones are the de-facto computing device in much of the world
- Easily affordable low-tier phones are highly resource-constrained
 - minimal platform does not support 3rd party application development
 - communicate with voice and SMS only
- Sensor networks are difficult to set up and manage

Our Solution - FoneAstra

- Extend phone capabilities via a low-cost, programmable hardware add-on
- Support for application-specific sensing and computation
- Leverage phone as modem for communication and for I/O with user

Applications

- Vaccine cold chain monitoring
- Pasteurization in human milk banks
- Cell tower ID based location tracking



On-Going and Future Work

- In-field deployments with PATH
 - Albania, Nicaragua, Senegal, South Africa, Tunisia
- Support for audio-based I/O
- Interface to Smart Phones
 - USB-powered sensors, Bluetooth communication
- Applications in healthcare delivery and point-of-care diagnostics

Acknowledgements

Microsoft Research India, for funding initial platform development and PATH, for collaboration in FoneAstra deployments

