Fast Readout and Low Power Consumption for Capacitive Touch Screen Panel by Compressive Sensing

Shuo Gao, Jackson Lai, and Arokia Nathan
The Hetero-Genesys Laboratory, Department of Engineering, University of Cambridge
(E-mails: sg690@cam.ac.uk, an299@cam.ac.uk)

Introduction
- High power consumption in touch screen panels (TSPs) shortens battery’s lifetime in mobiles.
- Compressive sensing based technique is presented for down-sampling by using signal’s sparse property.

Results and Discussions
- Reconstructed touch signals for multi-pad and row-and-column TSPs:
  - Original signal
  - 50% Reconstructed Signal
  - 30% Reconstructed Signal
  - 10% Reconstructed Signal

Conclusion
- The number of measured touch pads is linearly positively correlated with power consumption and readout speed.
- By employing compressive sensing based technique, only 10% of original touch pads are read, increasing readout speed and reducing power consumption.