

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

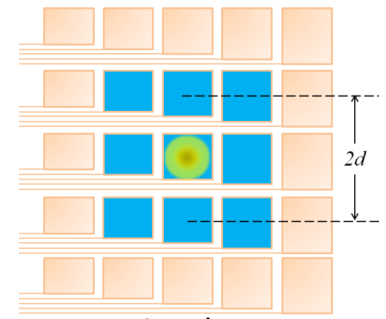
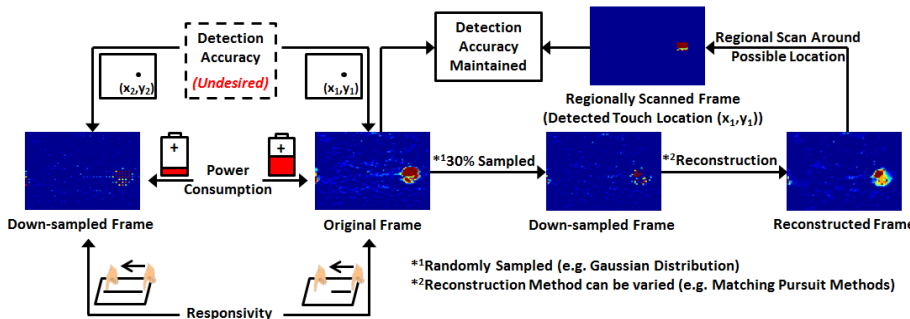
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Introduction

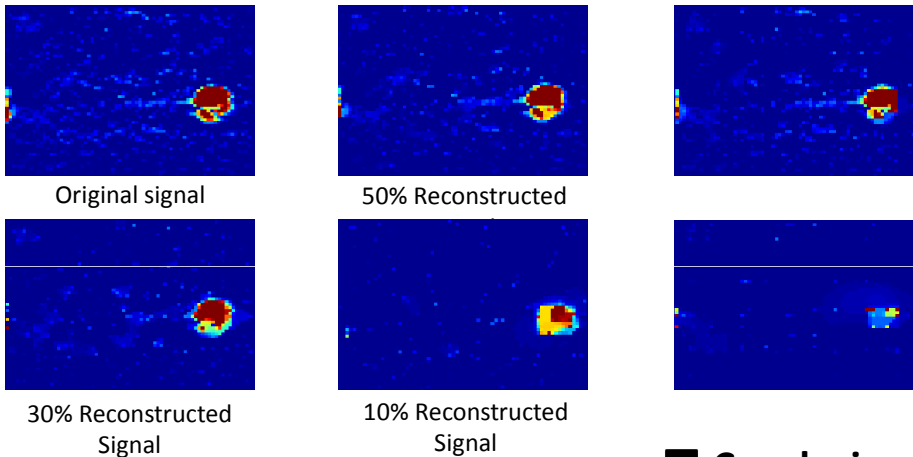
- High power consumption in touch screen panels (TSPs) shortens battery's lifetime in mobiles.
- Compressive sensing based technique is presented for down-sampling by using signal's sparse property.



Regional scan

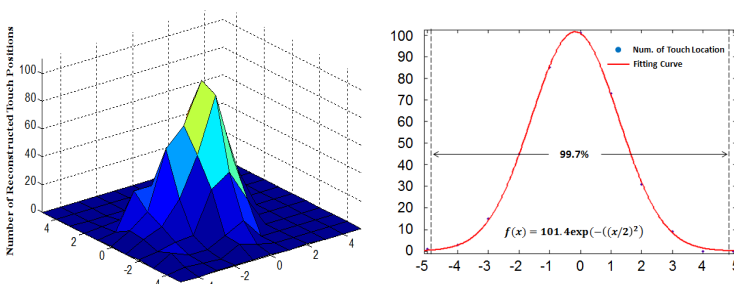
Results and Discussions

- Reconstructed touch signals for multi-pad and row-and-column TSPs:



MULTI-PAD TSP		
$P_{Down-sampled}$	$N_{Down-sampled}$	$N_{Regional-scan}$
10%	640	121
30%	1920	81
50%	3200	49

- Reconstructed touch position distribution:



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.