

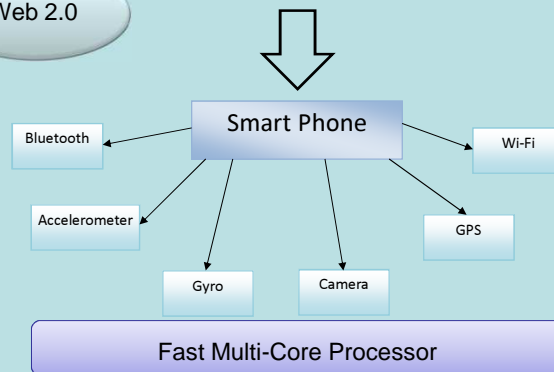
The Smart Phone as a Survey Tool

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Changing Technology Landscape



Smart Phone Application The University of Nottingham

- Android application written to enable the smart phone to be used as a data collection tool.



DATA FILTERING

Some means of quality control is required to remove outliers from the data.

The data filtering techniques used are:

- ❖ Using the data quality indicator provided by the Android API from the GPS engine to set a threshold for identifying outliers.
- ❖ Averaging of data on static points.
- ❖ Using comparison with accelerometer data to identify and remove gross errors.

Data Correction The University of Nottingham

- The GPS data collected on the smart phone will contain errors from different sources including orbital, atmospheric and multipath errors.
- There is no access to the raw GPS pseudo-range or carrier phase observables. Therefore differential techniques cannot be performed.
- In seeking to use the smart phone as a surveying tool the data quality and reliability is of importance. Therefore a simple correction methodology was tested.



Static test on NGB11:

	Easting	Northing	Height
Smart phone			
Average	454876.698	339692.636	61.452
TRUE NGB11	454893.289	339700.255	30.796
Error	-16.591	-7.619	29.631
RMS Error	20.094		
Corr from NGB12	2.280	-0.411	-9.784
Corr.Coords	454878.978	339692.225	50.643
New error	-14.311	-8.030	19.847
New RMS Error	14.868		

Data Correction

