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Development of a stand-alone software for real-time data acquisition

At CERN, EN-SMM-ASG section (Engineering Department – Survey, Mechatronics and Measurements – Accelerators Survey and Geodesy) is responsible for the metrology and alignment of the accelerator components and their associated beam transfer lines.

As there is no commercial solution for the straight data acquisition of leveling, offset ecartometry and roll angle measurements, CERN developed, in 2005 for the LHC installation, the Pocket Field Book (PFB) software supplied on PDA platform. Hardware obsolescence and evolving needs led this year to the development of a new application called SMART - Survey Measurement Acquisition in Real Time - that allows data collection on Android smartphones and tablets.

This nomadic tool proposes several controls on the field and thus minimizes user mistakes. In addition, the online acquisition mode saves time and eliminates the risk of typing errors. The commissioning of this software before the beginning of LS2 (Long Shutdown #2) will bring more comfort to users and increase productivity. The presentation will start with focusing on the information technology strategy as well as on the development difficulties encountered. Then, the testing protocol, which allowed the validation of the software, will be described. Finally, main functionalities will be presented, as well as most likely improvements planned in the future.

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