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Development of a device to perform staking out procedures at large-scale accelerator facilities

Staking out the arrangement of construction elements at large-scale accelerator facilities is an elaborately and time-consuming task. To speed up and to increase reliability of such procedures a device is developed which also makes work more comfortable for survey staff. The semi-automatic system basically is kind of a mobile laser engraver controlled by a laser tracker. The complete vehicle is similar to a shopping venture concerning manoeuvrability and handling. For accurate location purposes of marks on the floor, a rotatable corner cube is installed on a XY-robot aligned to the engraving laser.
Guided through the system on the basis of the design planning by laptop, the user moves the vehicle next to the coordinates to be staked out. Subsequently fixing the device, engraving the marks for the construction elements within the work area is started. Each marking takes only a few seconds. After finishing, the system can be moved to a new destination for staking out the next set of coordinates. The developed prototype delivers proper results in laboratory environment and will be tested under real conditions now.

Authors: Mr WEHNER, Andreas (Institut für Geodäsie, UniBw M); Dr PRENTING, Johannes (DESY); Mr PIMPI, Julian (Institut für Geodäsie, UniBw M); Dr SCHLÖSSER, Markus (DESY); Prof. HEUNECKE, Otto (Institut für Geodäsie, UniBw M)

Presenters: Mr WEHNER, Andreas (Institut für Geodäsie, UniBw M); Mr PIMPI, Julian (Institut für Geodäsie, UniBw M)

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