

# Prototype of an Academic ISO11783 compatible Task Controller

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Research of tractor-implement automation and mobile communication between work units and Farm Management Information System (FMIS) has been important research topics at MTT Agrifood Research Finland. Practical research and development require technology platform to be adjustable by researcher themselves. To fulfil this demand, an academic version of Task Controller (TC) was designed and constructed.

The ISO 11783-10.2 standard describing task controller and management information system data interchange was the basis of the development work. The standard specifies most properties very exactly, but in some parts freedom is given to the designer. The prototype documented in this paper fulfils most of the specifications of the standard. Panasonic CF-P1 Pocket PC with GPRS connection was used as the TC device. The programming environment was MS Visual Studio and programming language C# . The TC was tested in field in ISOBUS sprayer environment (<http://autsys.tkk.fi/en/Agrix/Basic>).

The ISO 11783-10.2 was mostly followed, but there are some properties, data formats etc. which are not fully completed in all details, and are still under development. The development consisted creating TC interfaces to Implement ECU and Tractor ECU via ISOBUS and FMIS server.

The designed TC realises the basic needs for farm field operations: (1) Transferring task files from FMIS to TC in XML format. (2) Initializing the TC and IECU according to needs. (3) Adjusting the treatment zones, described in polygons, according to task file declarations. (4) Collecting sensor data in IECU and storing it with time and spatial data in a logfile. (5) Sending the logfile to FMIS via wireless internet.

The TC following the ISO 11783-10.2 standard was proven to work in field tests. The used programming environment and language was proven appropriate. Further research and development work is needed to define content of the information gathered from the implement and structure of task file XML and logfiles, especially when connecting the system with different implements.

**ISO/FDIS 11783-10.2** Tractors and machinery for agriculture and forestry - Serial control and communications data network - Part 10: Task controller and management information system data interchange (ISO/TC 23/SC 19, Final draft)

**L. Pesonen, H. Koskinen & A. Rydberg:** InfoXT – User-centric mobile information management in automated plant production.