symbiosis

Utilizing of information in potato production

信息科技在马铃薯生产中的应用

- a-Lab Oy Ltd

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What information?
信息类型

- Weather and soil conditions (automated collection)
  天气和土壤条件(自动收集)
- Harvesting and storage conditions (automated collection)
  收获和贮藏条件(自动收集)
- Use of fertilizers/chemicals (manual input/collection)
  化肥/化学制品的使用(人工输入/收集)
- Packing/processing line quality/quantity data and potato origin (growth place) information.
  包装/处理生产线质量/数量数据和马铃薯的产地等信息

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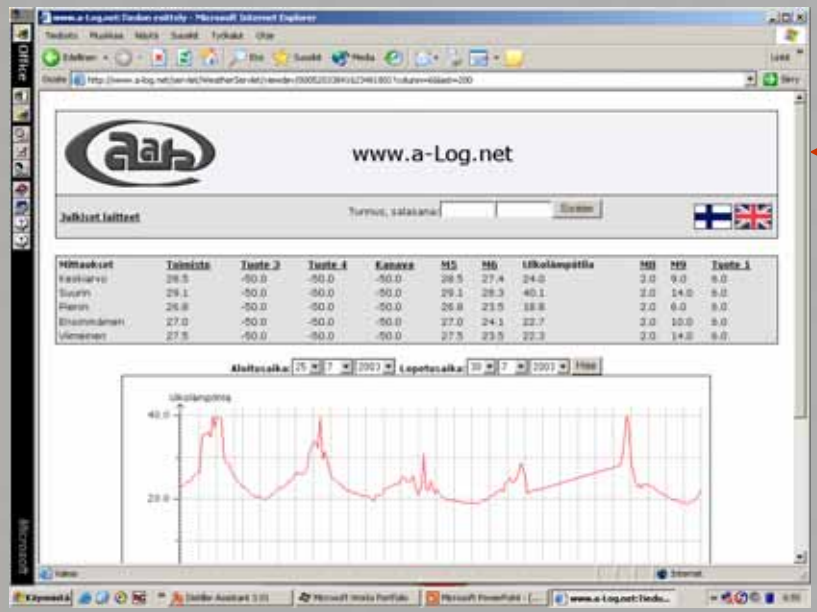
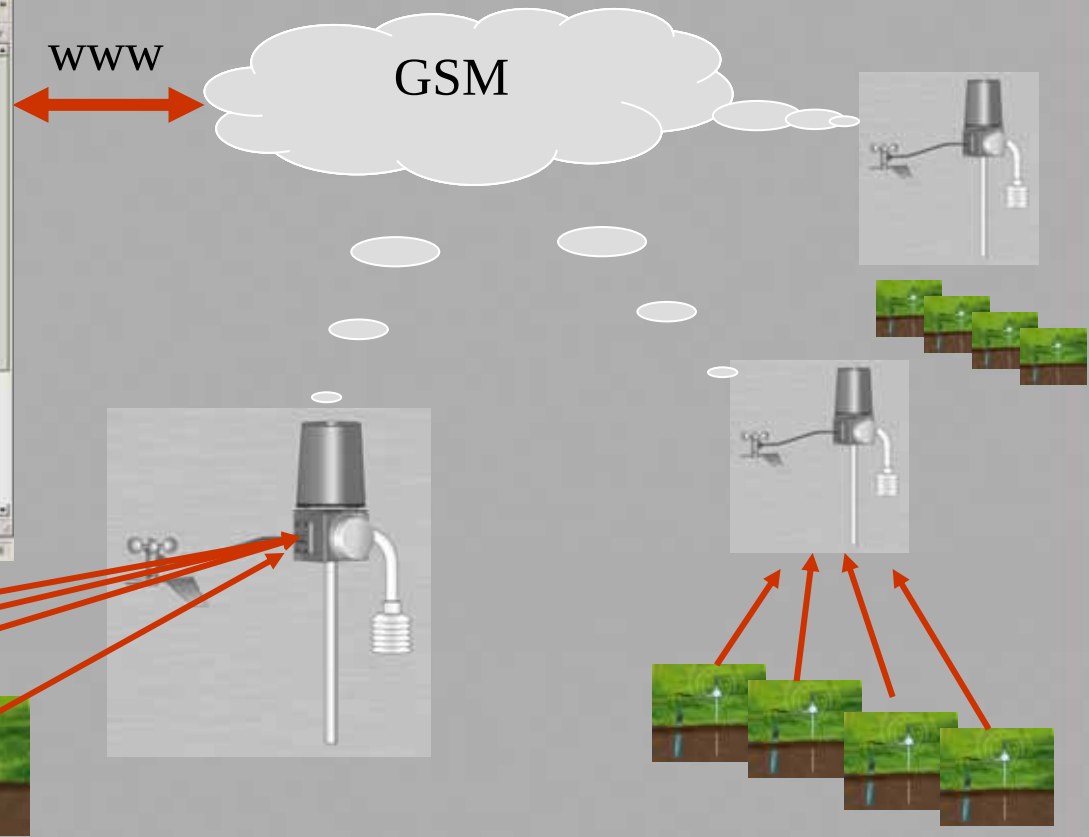
Weather and soil conditions

气候和土壤条件

- Wireless and automated weather station network

  无线和自动化的气象工作站网络





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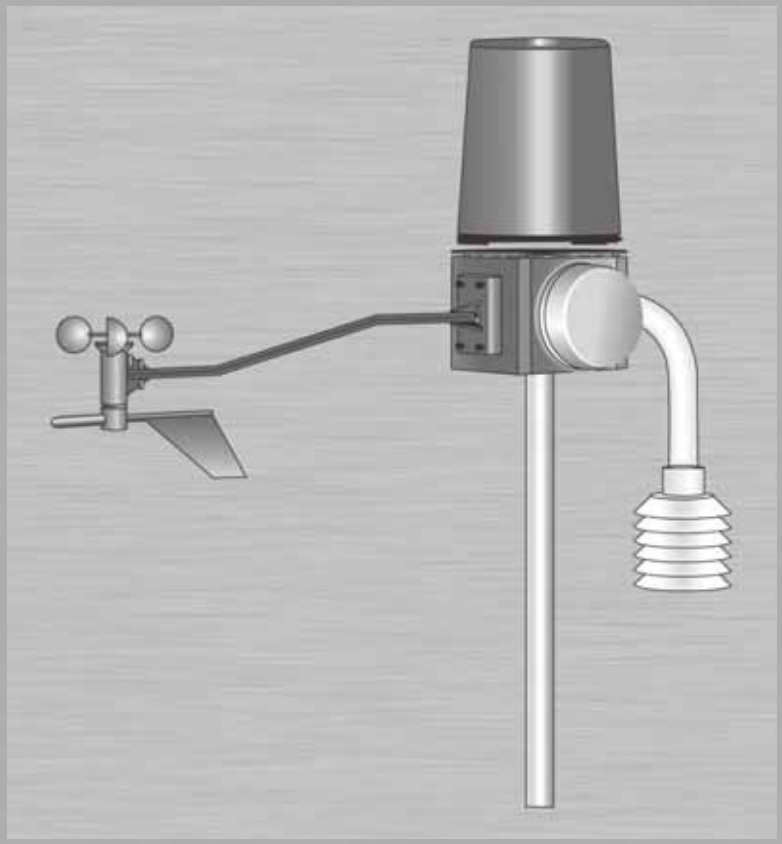
Weather and soil conditions

气候和土壤条件

- Automated weather/soil stations

  自动化的气候/土壤工作站



a-WeatherStation 气象工作站

a-WeatherStation can measure tens of parameters and send recordings to **a-Log.net** data server.

数据测量,记录和传送

Measurements 测量

- Air temp.& humidity, max. 16 sensors 气温,湿度
- Soil temp. & moisture - max. 16 sensors 土壤温度和湿度
- Rainfall, wind speed & direction 降雨量,风速和风向
- Light, leaf wetness, pressure, salinity阳光,叶面湿度,压力,盐度

Alarms 报警信号

- All parameters can generate alarm message 所有参数可以产生报警信号
- Plant disease or pests risk calculations 植物疾病或有害物威胁统计
- Day degree sums, night frost prediction 日度总和,夜晚霜冻预测
- Suitable spraying weather prediction 适合的喷雾天气预测

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Weather and soil conditions

- Wireless soil condition measurement network

a-SoilSensor measures soil temperature, soil water content and micro-climate temperature and humidity/dew point
土壤感应器测量土壤温度,水分含量,微气候温度和湿度/露点

a-SoilSensor 土壤感应器

Measures 1…4 parameters and sends readings to the a-WeatherStation and further on to the a-log.net data server.

测量参数并传送数据至气象工作站, 最后传送到数据服务器

Measurements

- Soil temperture 土壤温度
- Soil water content 土壤水分含量
- Crop micro-climate air temperature 农作物微气候空气温度
- Crop micro-climate air humidity/dew point 农作物微气候空气湿度和露点

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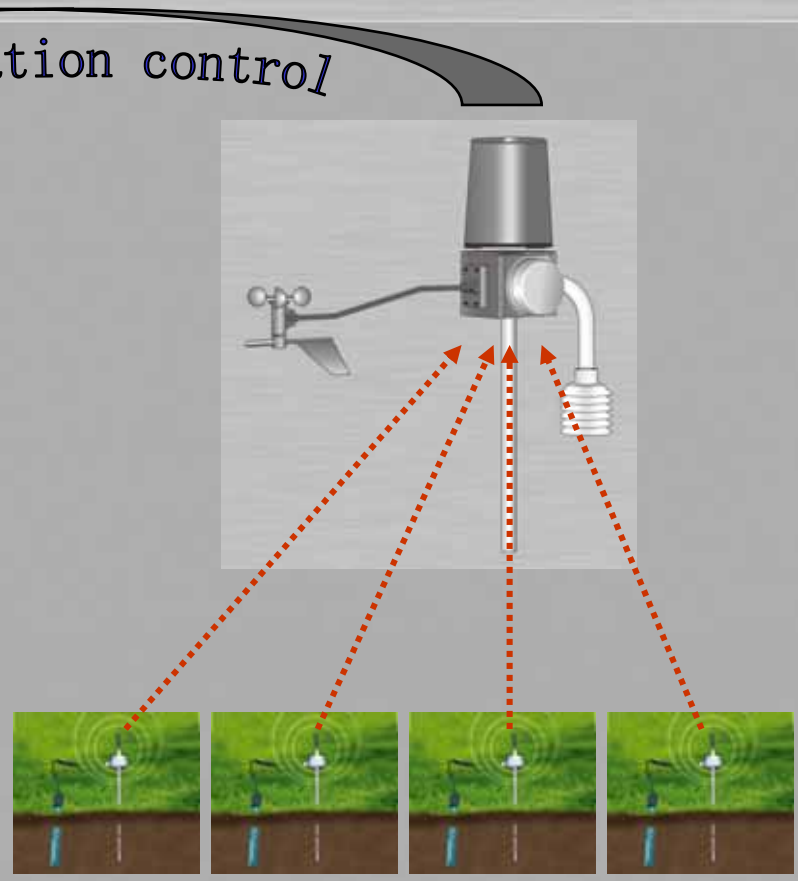
Weather and soil conditions

- Irrigation control 灌溉控制



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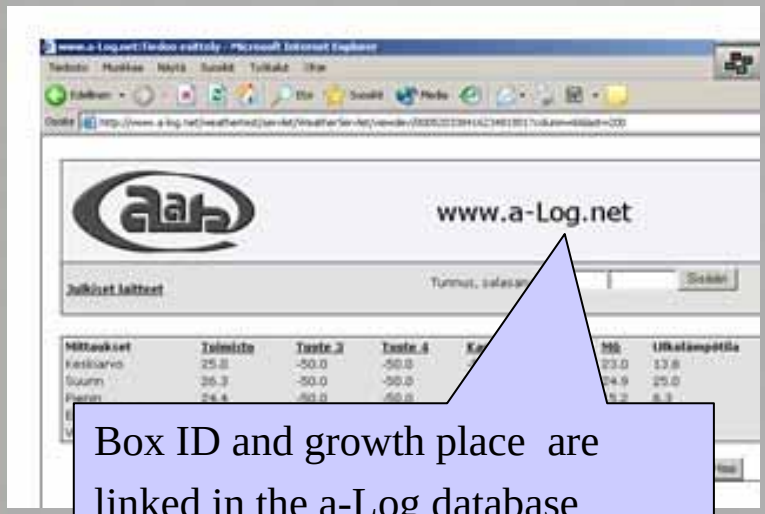
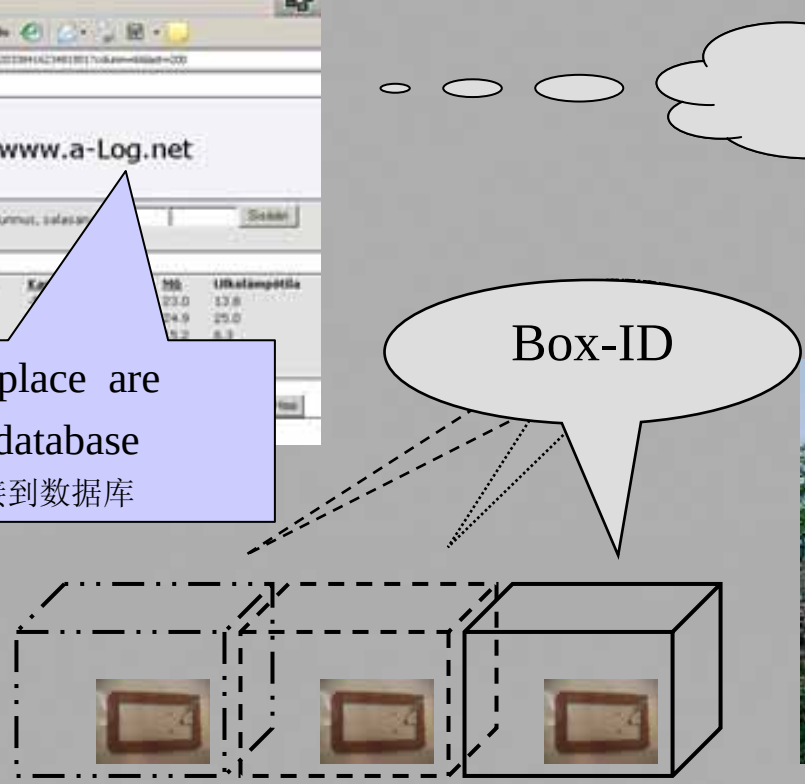
Harvest time data 收割期数据

- Harvester saves growth place for every box
  收割机保存每箱产品的生长地点
- Boxes have RFiD-labels for automated recording
  每个箱子都有RFiD标签自动记录



Box ID and growth place are linked in the a-Log database
箱子标签和生长地都联接到数据库



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Harvest time data

- Box ID and growth place are linked in the database

  数据库中箱子标签和产地信息相关联
- Weather/soil data is linked with growth place in the database.

  数据库中气候和土壤数据与产地信息相联接
- Field section is linked with box ID in the database.

  田地部分信息和箱子标签相联接

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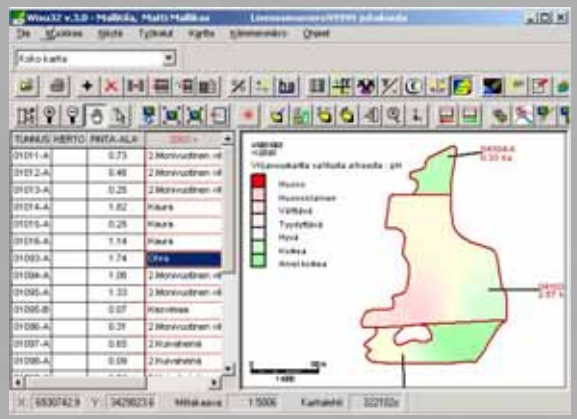
Use of fertilizers & chemicals

化肥和农药使用



- Location data is recorded during fertilizer spreading and chemical spraying and stored into database.
  施放化肥,农药的位置信息都会记录在数据库中
- Field section data and box-ID are linked in database to form traceable chain for potato origin and growth method information.
  数据库中田地部分数据和箱子标签相联接,形成关于马铃薯从开始到生长方式的全部信息跟踪链

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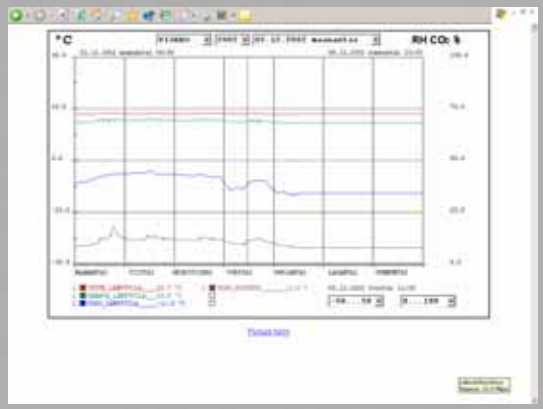
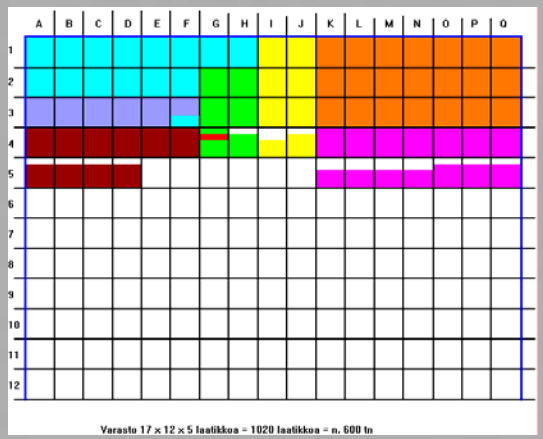
Storage conditions & logistic data

贮藏条件和运输数据





- Storage conditions are recorded accurately and linked with growth place & weather data.
  贮藏条件准确的记录并与生长地和气候信息相联接
- Box-ID and storing place are linked.
  箱子标签和贮藏地相联接
- Linking field section data and storage place data can help logistic problems in operations handling large number of boxes.
  在处理大量产品箱的操作中,田地数据和贮藏地数据相联接可以解决很多物流问题

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Principal of a-log.net server

a-Lab Ltd

数据网络服务器

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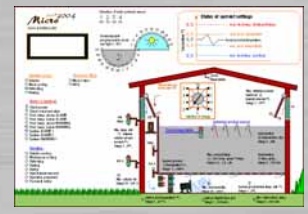
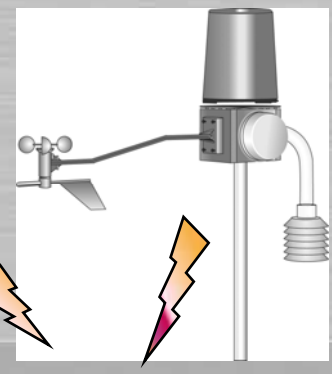
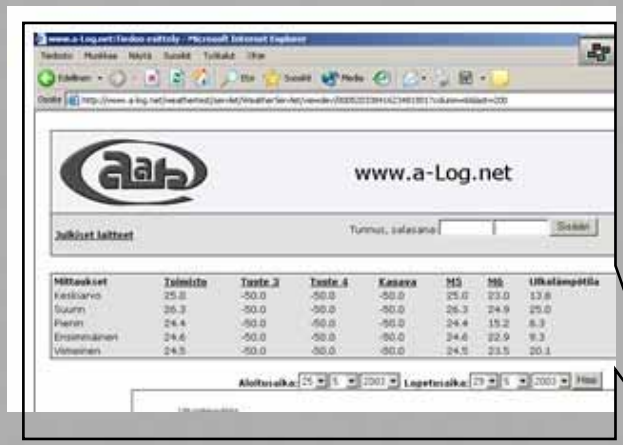




Field data gathering trough GSM network
数据采集通过移动网络



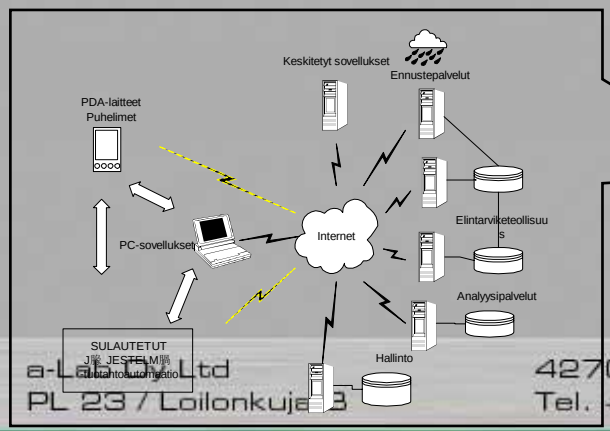
Data server **a-log.net**

www-user interface 用户

XML-(output)

Data server (a-log.net) takes care of security and handles XML-based comm.数据服务器处理

Data input and decoding
数据输入和解码



Data exchange for machine-to-machine users with XML language.
数据交换

SQL-database(s) is/are located in a safe place and stores all the data in the system. 数据库系统

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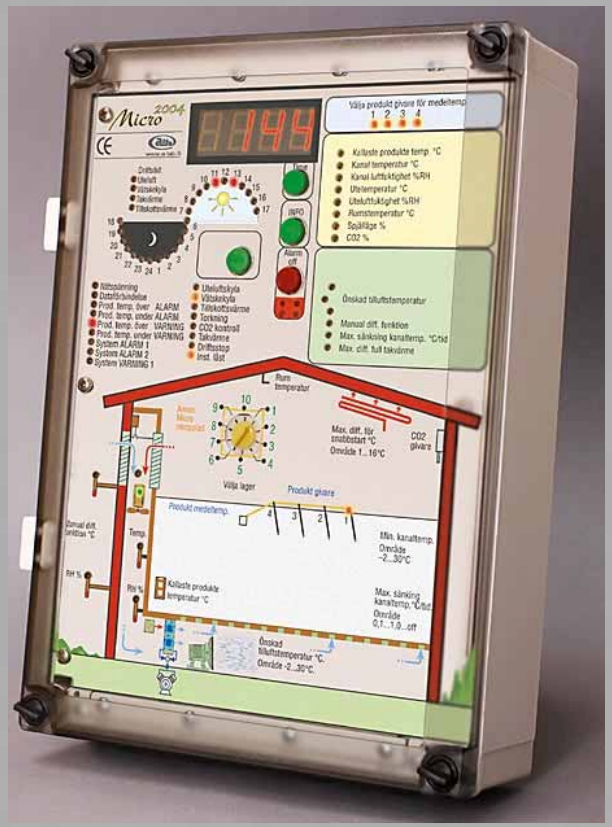
The good potato storage controller…

马铃薯贮藏控制器



- is reliable and has accurate sensors, i.e. temperature measurement accuracy better than 0,2´C
  可靠准确的感应器
- is very easy to use
  方便使用
- is programmed to a local conditions, not for ”general purpose control”.
  可根据当地条件设置
- has a sophisticated warning and alarming system
  有先进的警告和报警系统

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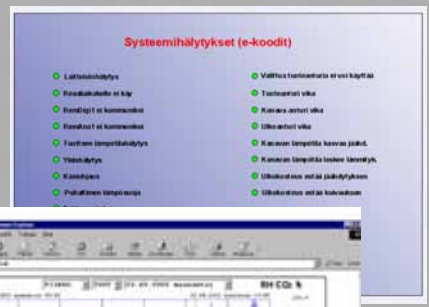
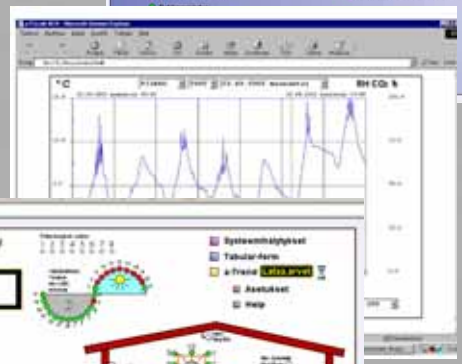
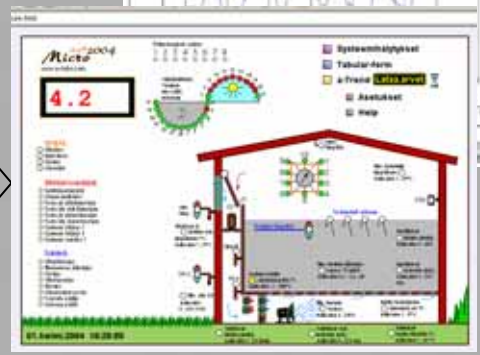
The good potato storage controller…

- Provides differents ways to control the storage
  提供多种方式控制贮藏







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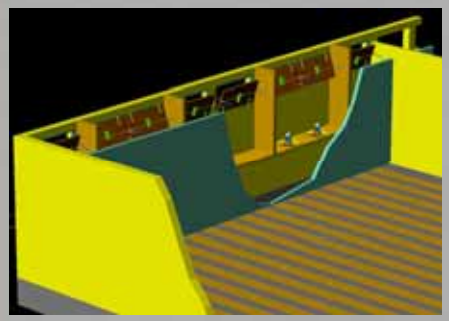
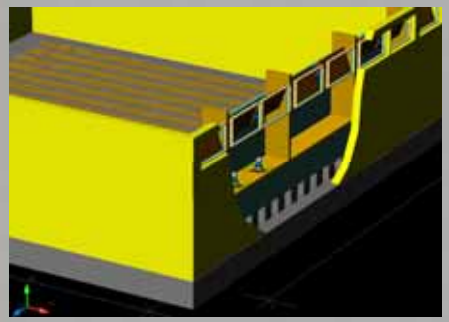
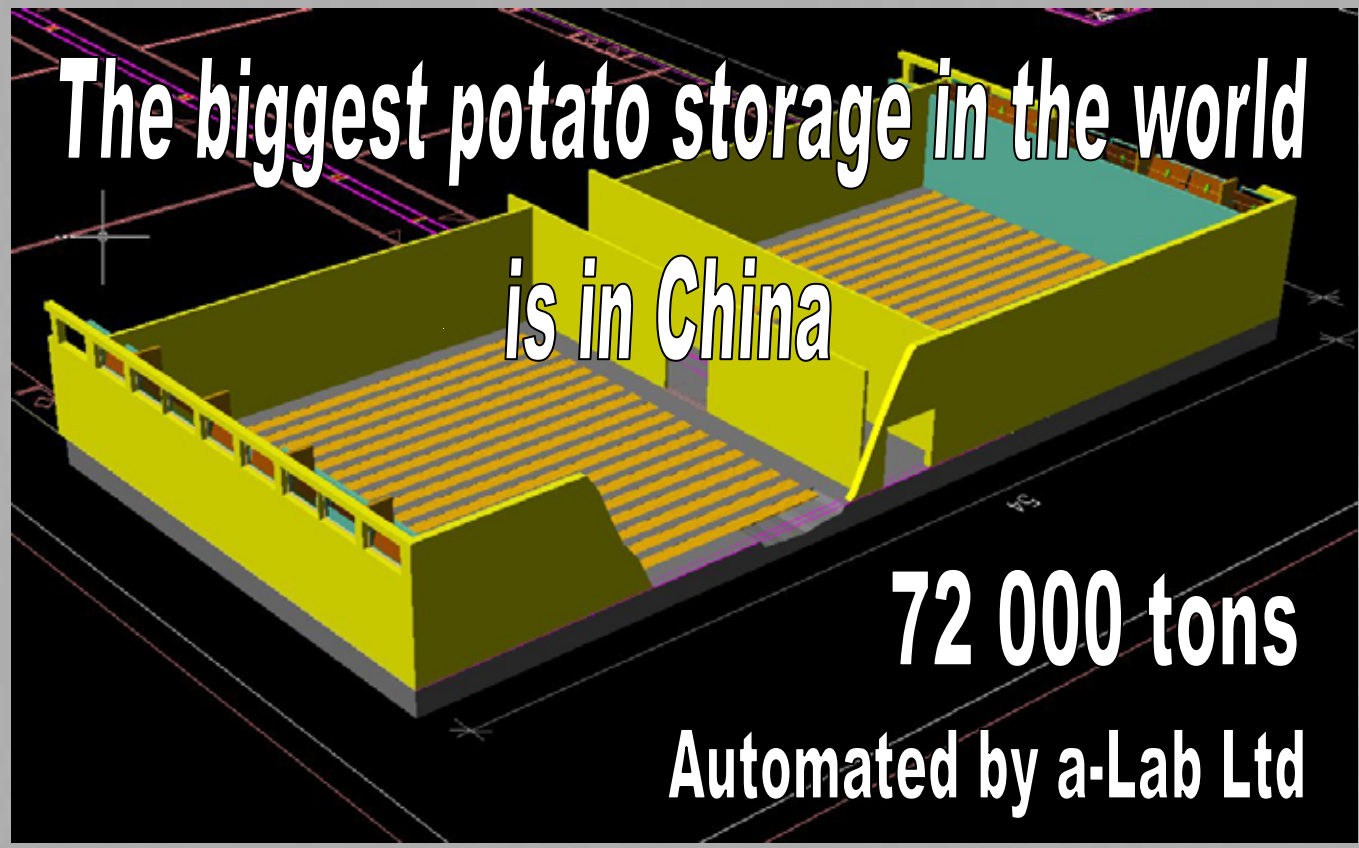
For a bigger and smaller storages…

- Use only the best designers!







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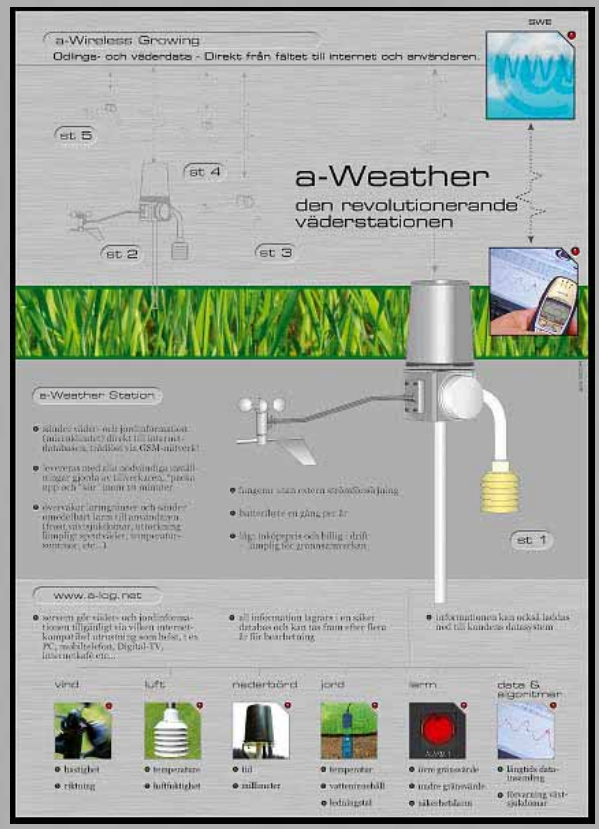
For more information, please ask for a broshure…

Broshures available

- Chinese
- English



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