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## Increasing the value and traceability of milk samples with NFC technology: SmartLY

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Eilyps decided to create SmartLY in 2014 to develop improved data collection on the farm. SmartLY is a mobile application which allows to take a milk sample identified with an RFID tag. This tag could be linked to animal electronic identification in farms. The enhancement of the electronic identification is an option which needs an LF/HF reader in milking parlours. The NFC technology secures data collecting, sorts milk samples and by consequence multiplexing the number of analyses in the same sample.

*Keywords: milk sample, nfc, rfid.*

To continue development and to create differentiation in a competitive market, Eilyps decided to make a mobile application for data collecting in dairy farms. This application allowed to continue our historical profession while at the same time answering breeders' future needs and adapting to the new information technologies.

SmartLY is composed of different modules dedicated to precise parts of milk recording. Each module can be sold separately to breeders or milk recording companies.

This solution could be integrated in to different types of information systems and data bases.

SmartLY offers a range of our Service Oriented Architecture ILYCO on mobile devices. That means this ILYCO server host rules management, norms, control and data treatment. SmartLY is dedicated only for data collection and its functioning is simplified.

In this way, we find four levels on the server and smartphone:

- Common tools
- Business controls
- Storage buffer
- Web services proxy

All data exchange between SmartLY and ILYCO is based on Webservice

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### Abstract

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### Introduction

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### Mobility

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### **Electronic data collection and health module**

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The origin of the creation of SmartLY was data collection in dairy farms.

The first aim was to reduce to the maximum delay between milk recording operations and giving results to farmers. At same time, we wanted to decrease the amount of manipulation during data collection.

The second objective was to increase traceability and data reliability with using RFID technology.

In fact, with the emergence of new more precise analyses for some types of animal, it is necessary to reduce mistakes to the absolute minimum.

SmartLY collects all the information concerning the milk recording such as animal identification, farm identification, date and time, weight of milk for each cow.

The employee or the breeder using SmartLY transfers data immediately after milking to the database and receives in return all the validated data.

Health data for each animal can be collected with a specific module of SmartLY. These health events are archived to create some indicators for advisors. SmartLY is the software to keep animals' health profiles fully up to date.

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### **Specific analyses**

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More and more specific analyses are appearing in the dairy cow industry. To answer the demand from breeders, SmartLY has developed a specialized module to manage distinctive analyses.

With the collaboration of laboratories, we can sort all samples with a specific identification during data collection at the dairy farm.

Some management rules in data base select the animal concerned by specific analyses and check in a list on the smartphone. It is possible to choose one or more analyses for the same sample. SmartLY flags a sample's tag to differentiate specific analyses during data collection.

After validation by breeders, the employee writes on the tag with the NFC technology.

In the laboratory, the vials identified by a specific code on the chip are sorted and can be directed to the particular analytical operations.

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### **Animal electronic identification**

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To increase traceability from the animal to the sample, SmartLY comes with an option. With the LF/HF reader of Reyflex, it is possible to read the cow's anklet and write on a tag fixed on the milk meter.

Once cows are milked, SmartLY reads the milk meter. All information is recorded on SmartLY and written on the tag inside the sample.

This option increases traceability and efficiency during milk recording operations.

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### **Further development**

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Eilyps and its milk recording companies partners want to develop a new module. The aim of this module is to make it easier to complete the activity report by using flash code technology to geolocate employees and timestamp the activity. With the smartphone camera, it is now possible to read all the information to create the report automatically.

This option could also be used in other farm activities.