AMNOS-mobile®: Exploiting handheld computers in efficient sheep recording

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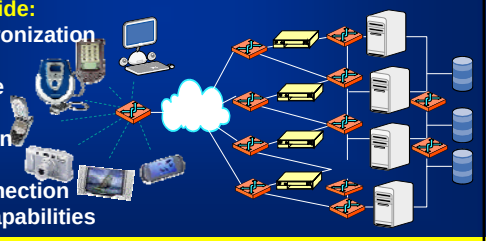
Evolution of Mobile technologies

Different types of mobile devices, evolving through time:
- Cellular Phones -> Smartphones
- Palmtops -> PDAs, Pocket PCs, iPODs

They now provide:
- E-mail synchronization
- File transfer
- Music storage
- Data entry
- Data validation
- Monitoring
- Wireless connection
- Ubiquitous capabilities



AMNOS: The beginning

AMNOS®, is an integrated web-based platform, developed to record, monitor, evaluate and manage the dairy sheep population of the Chios and Serres breeds in Greece

Chios Sheep

- Prolificacy: 2.0
- Milk yield: 300kg
- Lactation period: 200 days
- Recorded Animals: 10.000 purebred

•Results from recording 2000-2005 in the *Chios Sheep Breeders Cooperative "Macedonia"*

Serres Sheep

AMNOS limitations

- Data insertion into AMNOS is done in the office, although data collection and its utilization by the farmers, is done "on the field" (i.e. the barn or the parlour)
- This way the same task is conducted twice.
- Thus, omissions, errors, even complete loss of valuable information may occur.

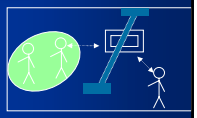
AMNOS-mobile®: The next step

- The use of handheld computers allows the automated input of data into the dairy sheep management system.
- Through proper interfaces, users may monitor the state of each parlor/barn easily and update it, according to their synchronous state.
- Data flow control hinders users from inserting erroneous data.
- Synchronization of the main AMNOS database is performed in an automatic and untroubled manner, just by 'docking' the PDA.
- This is the reason for adopting Pocket PCs and for designing and implementing AMNOS-mobile®.

Implementation Technologies

- DOT.NET Framework (Visual Basic 6.0)
- SQL Server CE 2.0
- PDA synchronisation

Methodology Applied



- *Minimal Attention User Interfaces (MAUI).*
  - ✓Transfer mobile computing interaction tasks to interaction modes
  - ✓Take less of the user's attention from their current activity.
  - ✓It is about shifting human-computer interaction to unused channels or senses.

User Categories

- Sheep owners
- Inspectors
- Veterinarians.

AMNOS analyzes the stored data and returns valuable feedback.

AMNOS Mobile® functionalities

Lambing

- insert data on a new lambing
- list all the animals and their lambings
- provide information on the weaning of the lambs

AMNOS Mobile® functionalities

Registration

- store information on the animals of the flock
- update animal status
- ability to select one or more of the animals and specify whether the animal has been sold, killed etc.
- ability to specify the genealogy of the animals

AMNOS Mobile® functionalities

Mating

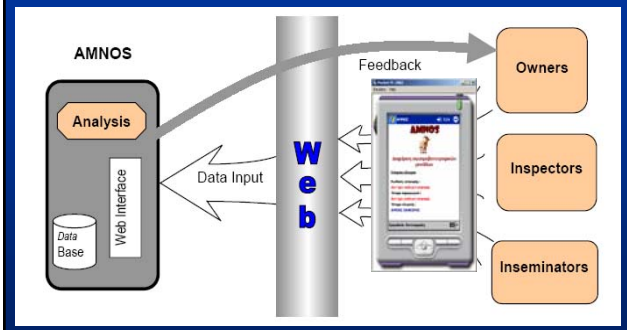
- specify the matings (artificial insemination following induced oestrus, induced oestrus and natural mating, group mating etc).
- different interfaces are provided for information to be inserted

AMNOS Mobile® functionalities

Milk production

- insert information on the milking process
- provide sums of all parameters for the certain milking of the flock
- check all animals data that are programmed for inspection

Information flow in AMNOS



Conclusions

- Reduction of workload, since the existence of handwritten notes and their insertion into a central database doubles the work. In case any corrections are required, this process stalls even more.
- Formation of interactive input and real exploitation of the output information
- Efficient handling of data quality and data integration issues.

Conclusions

- On-site data validation.
- Standardization of the reporting process, in order to avoid many-page printed reports with redundant information and difficult interpretation.
- Low implementation and scaling costs