

PHILIPS

New opportunities in Farm Management through wireless Sensors ?

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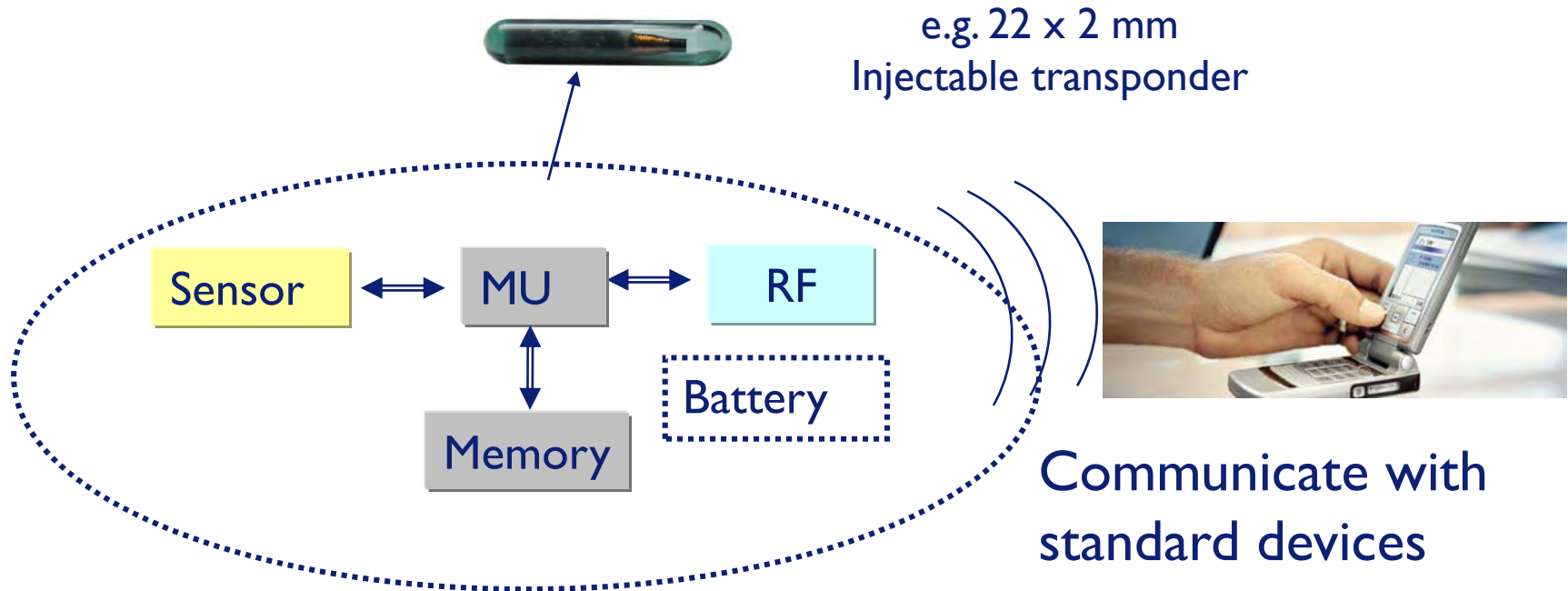
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Objective of this presentation

- **Describe wireless Sensor technology as an enabling technology**
- **Show options for different sensor types**
- **Provide food for thought**

What are Wireless Sensors ?



Sensors that are enabled to communicate with the outside world or with other sensors via wireless communication. Intermediate sensing results can be stored on the chip and can be read out on demand via standardised interface (e.g ISO 11785, ISO 15693, NFC..). A management unit might be included in order to process sensor data and even **draw conclusions**. It's the conclusions that the user (consumer) shall read via RF interface.

Unlimited possibilities of sensing

Temperature

PH

Glucose

Shock

Gas

Pressure

Acceleration - Movement

Chemicals

...

Sensing in Livestock Management

2 examples

A state of the art example use of Sensors

- Measurement of **Temperature**
- Glass tubes injected under the skin- or bolus placed in the stomach)
- Temperature glass tubes are available in the market
- For livestock the market demand seems to be still very low
- For Pet's the temperature feature is becoming more and more popular



“Heat” sensing Let’ s dream a bit

Sense Estrus-”Heat” for livestock
Is the cow ready for (artificial) insamination ?

One system has already been tried out

The HeatWatch™ system uses pressure and movement sensors in order to measure activity of the cow.

Result: It provides an indicator for heat, but is not accurate enough



Heat Sensing – a new method ?

Use chemical sensors (injected) instead.

Use chemical sensors to measure the **progesteron** levels in the blood of the cow

Progesteron is a solid indicator for “heat” of the cow.
(Low progesteron level indicates heat)



- Questions ?
- New ideas ?

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Thank you for attention