

Exercise for the lecture
Algorithms for Radio Networks
 Winter 2011/12
 Sheet 9

EXERCISE 9:

1. Consider an IRIS wireless mote that needs two AA battery cells with a capacity of 550 mAh per cell. Calculate the survival time of the battery in the following modes:

- Active Mode
- Sleep Mode
- Transmission Mode
- Receiving Mode

Refer to the IRIS mote datasheet to calculate the time: <http://www.memsic.com/products/wireless-sensor-networks/wireless-modules.html>

2. Give a formula for the energy consumption of a sender and receiver for transmitting a single message in the STEM Protocol. Use the variables t_{sleep} for the length of the sleep cycle, t_{overall} for the overall time, t_{tx} , t_{rx} for the transmission and receive time of a message, t_{alarm} the message length of the alarm message and $t_{\text{alarm-ack}}$ the time necessary to respond to the alarm message.

