

Exercise Sensor Networks (till March 31, 2008)

Lecture 3: Error recovery and energy efficient MAC

Exercise 3.1: Cyclic Redundancy Check

Divide the message 10111010011 by the generator polynomial 10011 as done in the lecture. Write down the whole message as it would be transmitted to a receiver.

Exercise 3.2: CRC polynomials

Write a function in Java or C which does the division above. The messages and the generator polynomials should be the input of the function (you can use strings of the kind "01001" but real bit operations are even more appreciated). The boolean result should denote if the message is divisible without a remainder or not.

Exercise 3.3: CRC polynomials

- (a) Find an easy to identify case in which a given polynomial will fail for a given error.
- (b) How long does a generator polynomial have to be at least in order to detect every possible bit error if the message has n bits?