

CS452/552 - Real-Time Operating Systems

Lab Assignment #2

Spring 2015

The purpose of this assignment is to give you some experience using the AVR ports, and to add some I/O devices that might become useful later for our RTOS.

You are to use one of the provided keypads to implement a “digital lock.” Your program should allow the user to enter a four digit code from the keypad, and if the code that is input matches the one included in your program, the “lock” should open. In this case, the lock opening will be represented by the lighting of an LED.

As the user enters numbers, consecutive LEDs should light, showing the user that a number has been entered and received, and to show how many digits of the code have been entered. In other words, after entering the first number, one LED should be lit, after two numbers, two LEDs should be lit, etc. This behavior should occur even if incorrect numbers are entered, so the user can tell how many numbers have been entered, but can't tell if the correct numbers have been entered until the end.

The pinout of the keypad is not intuitive - it is shown below.

As before, in addition to writing the code, determine the size of the code in your program.

CIRCUIT DIAGRAM

COL 1 COL 2 COL 3 COL 4

AK-1607

OUTPUT ARRANGEMENT	
OUTPUT PIN NO.	SYMBOL
1	ROW 2
2	ROW 3
3	COL 1
4	ROW 4
5	COL 2
6	COL 3
7	COL 4
8	ROW 1

