Report

Laboration 5

Display JHD202

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Course code: 1DT301

Contents

1 Task 1: Write a program that displays a character on the display.

Write a program in Assembly that displays the character %.Look in the data sheet how to initiate the display. The data sheet you'll find on https://www.student.vxu.se/.The display will be connected as in the figure above. 4-bit-mode should be used, since only RS, E, D7, D6, D5 and D4 are connected to I/O-pins on the STK600.(The program-lab5_init_display.asm gives you a good start...)

1.1 Flowchart

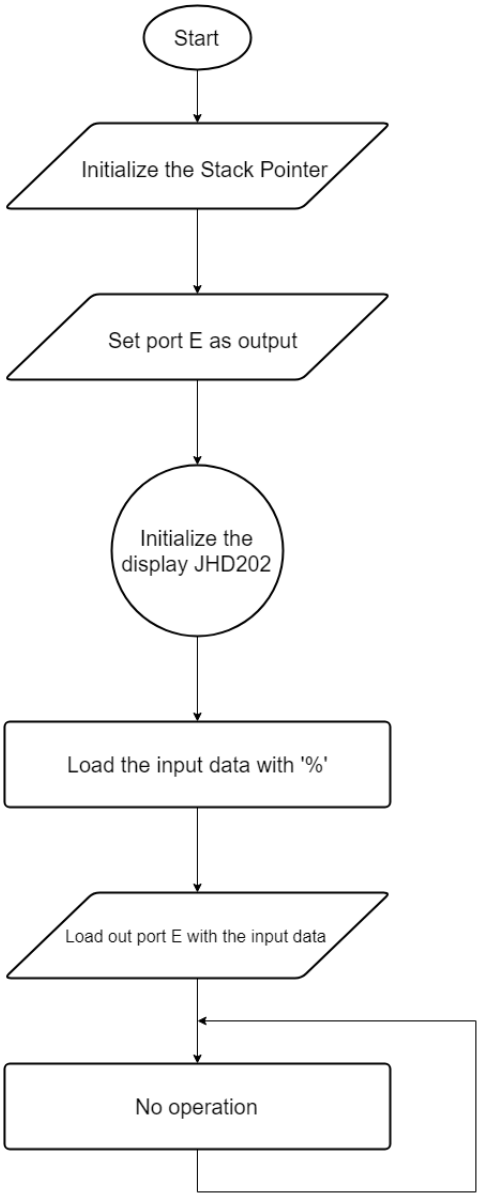

Figure 1: Flowchart for task 1

2 Task 2: Electronic bingo machine.

You should create an electronic bingo generator.The generator should create random numbers between 1 and 75. The numbers should be displayed on the display.Clear the display before anew value is displayed. Use interrupt and a push button for the input

2.1 Flowchart

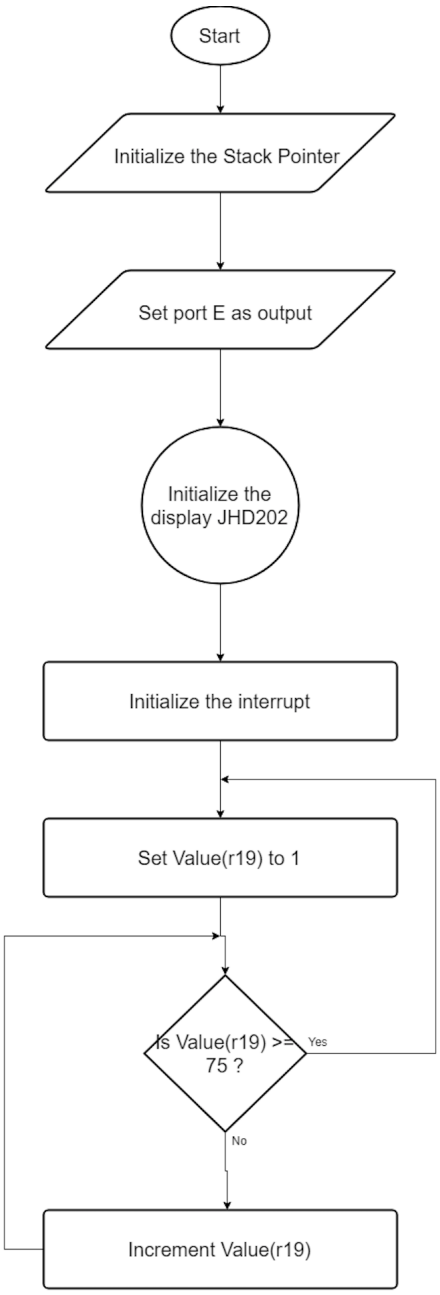

Figure 2: Flowchart for task 2

Figure 3: Flowchart for task 2 (interrupt part)

3 Task 3: Serial communication and display.

Use program modules from lab 4 and write a program that receives a character on the serial port and displays each character on the display

3.1 Flowchart

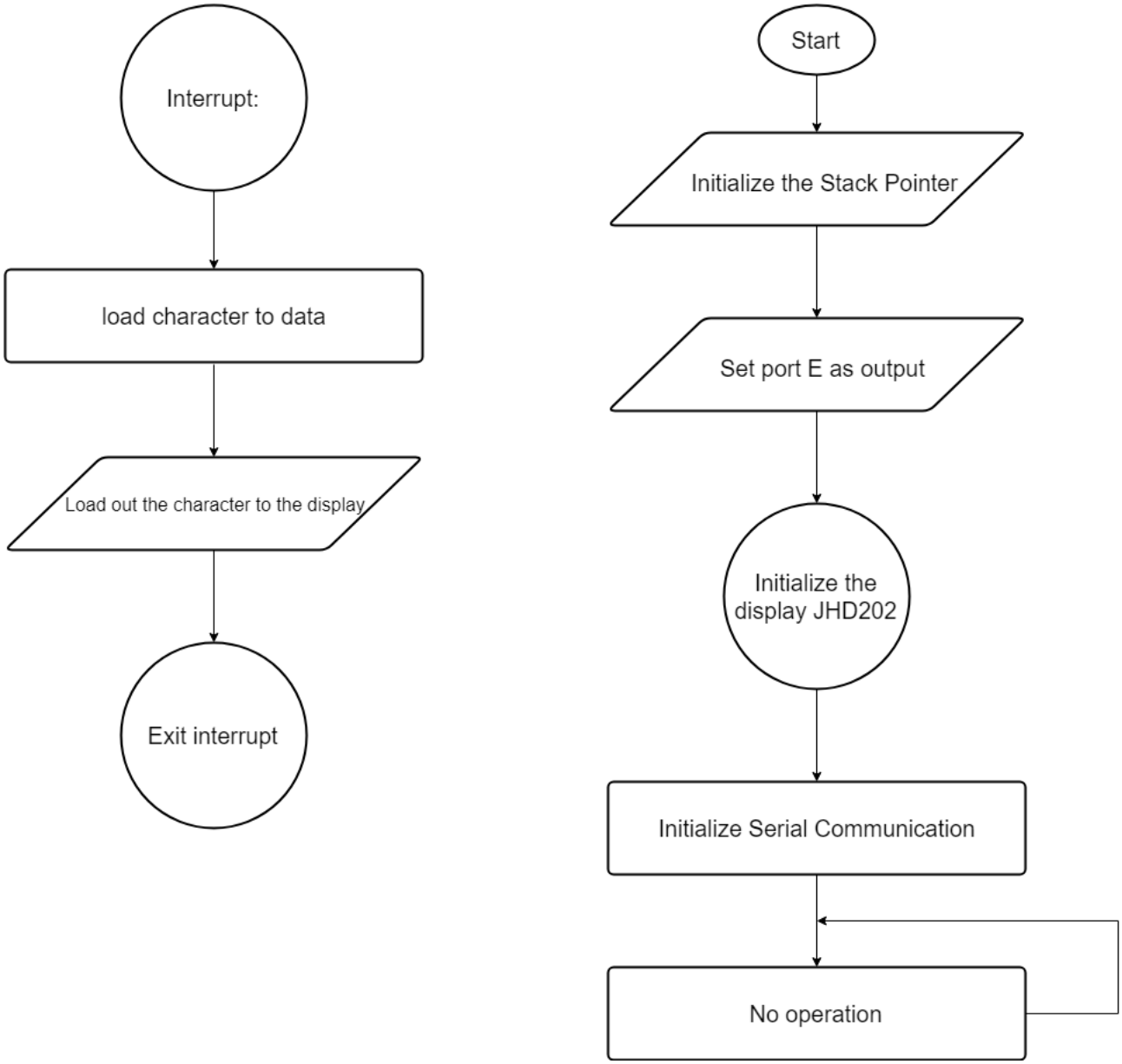

Figure 4: Flowchart for task 3

4 Task 4: Modify the program in task 3.

Modify the program in task 3 so that 4 lines of text can be displayed.Each textline shouldbe displayed during 5 seconds, after that the text on line 1 should be moved to line 2 andso on. The text should be entered from the terminal program, PUTTY, via the serial port.

4.1 Flowchart

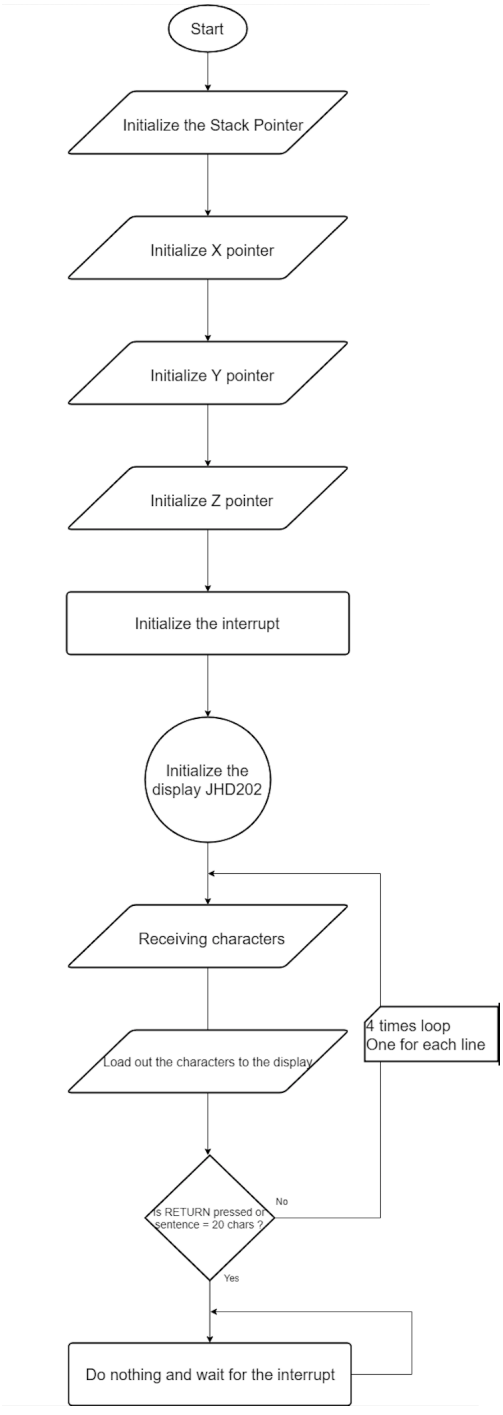

Figure 5: Flowchart for task 4

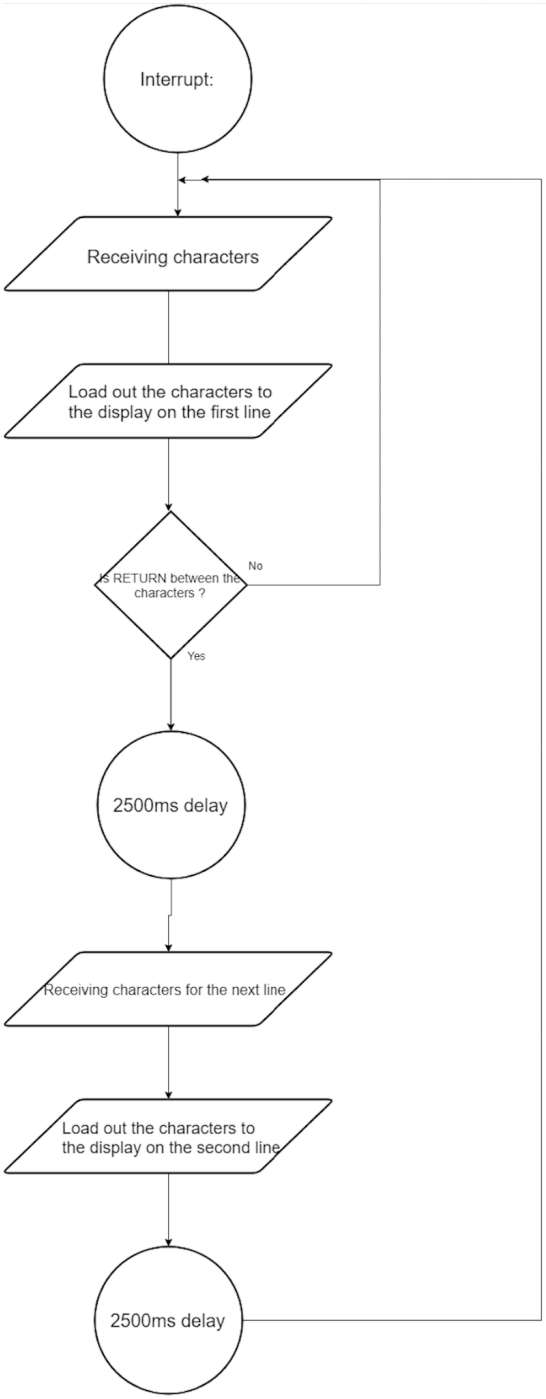

Figure 6: Flowchart for task 4 (interrupt part)

5 Assumption

We assume that user follow all of our assumptions and our set-up to make program executable and get the correct results.

- **Task 2:**
  - User use SW2 to generate random number between 1 to 75.
- **Set-up for PuTTy:**

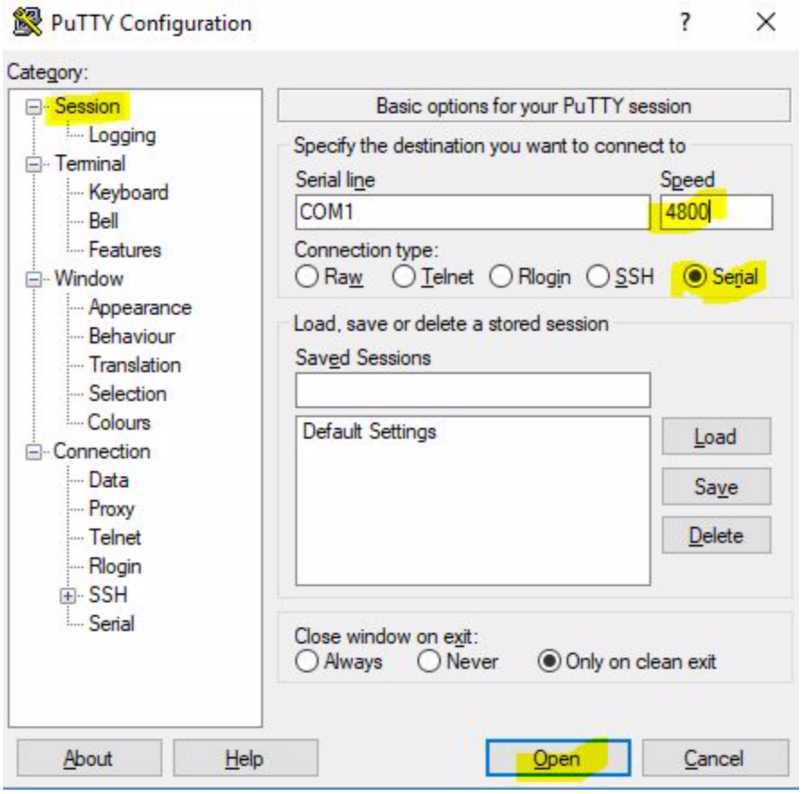

Figure 7: Putty configuration for task 3 and 4.

- **Task 4:**
  - User set-up the board like picture down below.
  - User use SW1 to switches between "writing" mode and "display" mode.
  - User press **Enter** on the keyboard to save line of text after finishing writing.
  - User **don't** suppose to press Enter after writing the last line of text (text4). For instance, write text1 → press enter → write text2 → press enter → write text3 → press enter → write text4 → press SW1 → enter display mode.

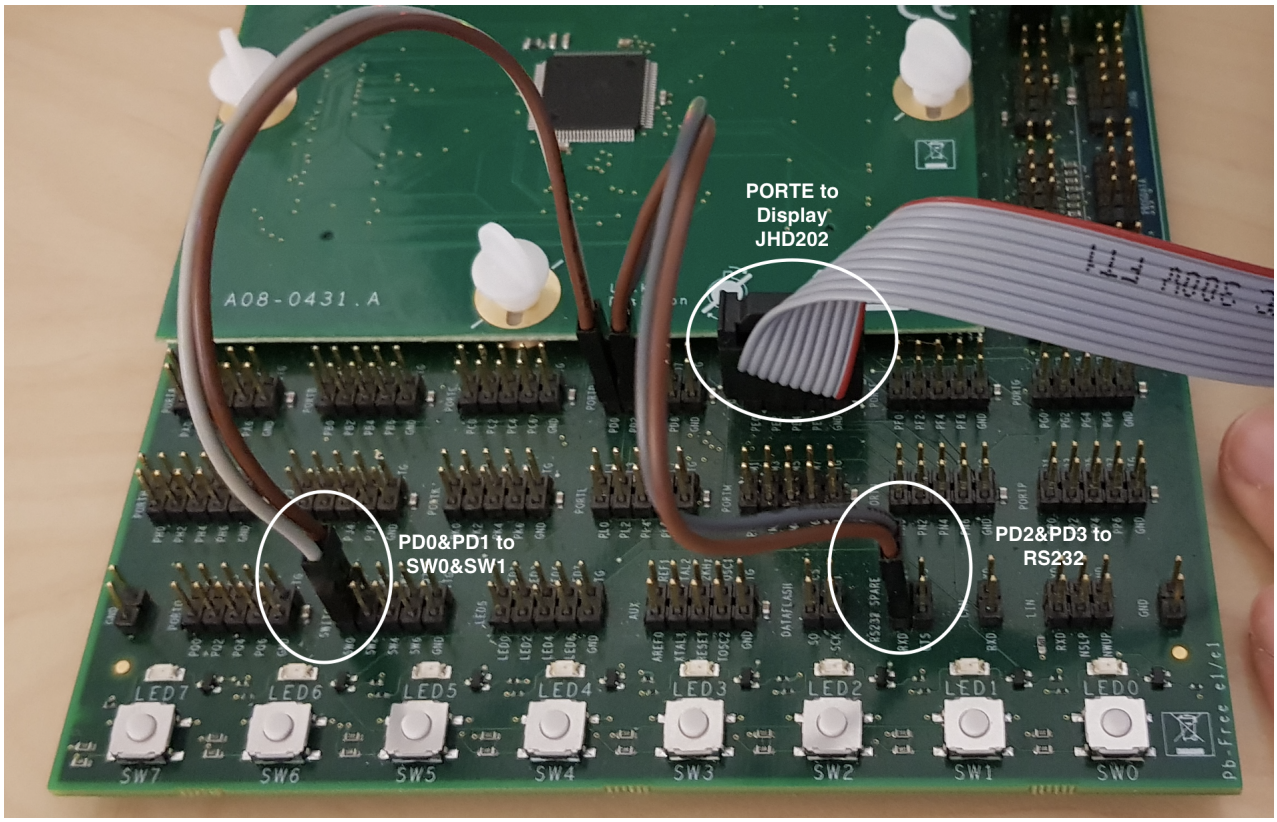

Figure 8: set-up for task 4