CSE522: RTES – ASSIGNMENT 4

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HCSR SENSOR

We successfully wrote the drivers for the HSCR sensor with 2 instants (HCSR_0 & HCSR_1) using configuration pointer component. Please find the pin configuration for the HCSR in the Read me File enclosed.
For the sensor channel we have used SENSOR_CHAN_ALL, SENSOR_CHAN_DISTANCE

Supported APIs:
- sensor_sample_fetch()
- sensor_channel_get()

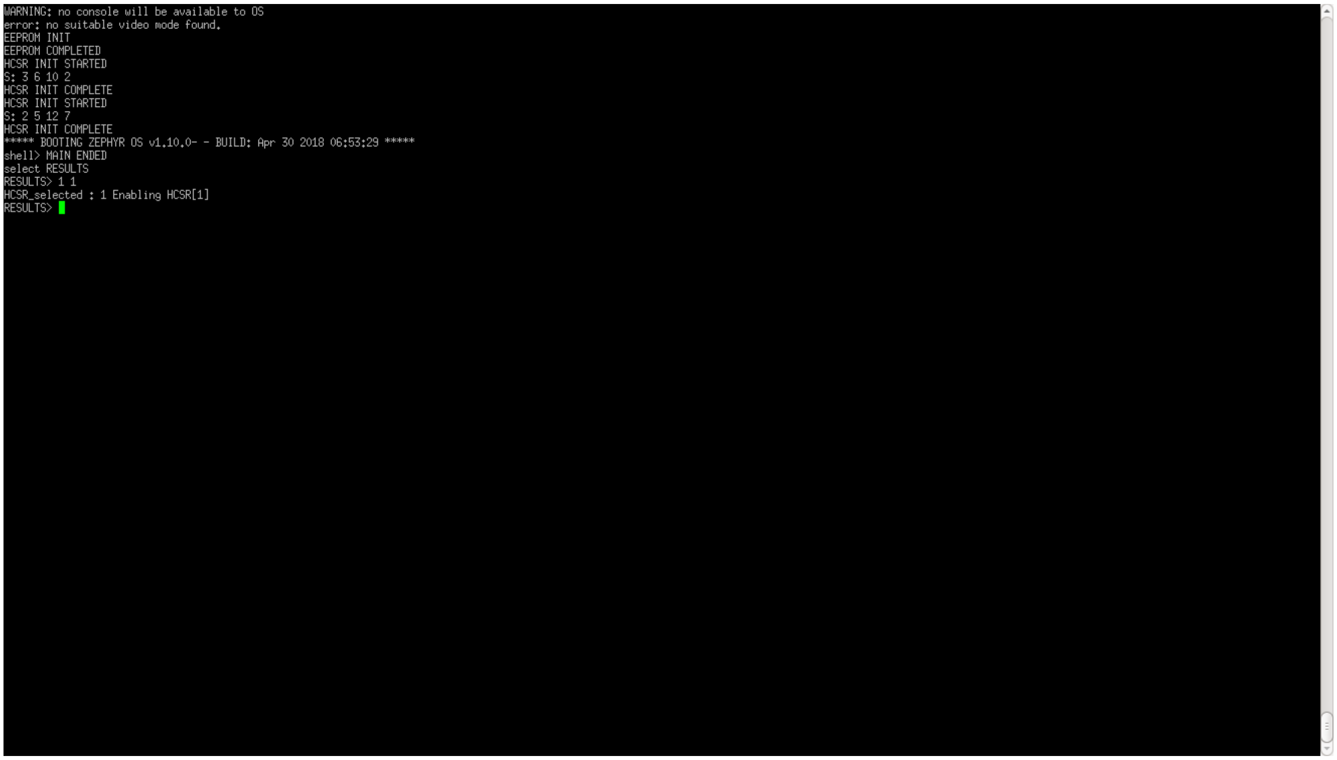
FLASH EEPROM

We successfully wrote the drivers for the flash sensor with the configuration as explained in the readme file.

Supported APIs:
- flash_read()
- flash_write()

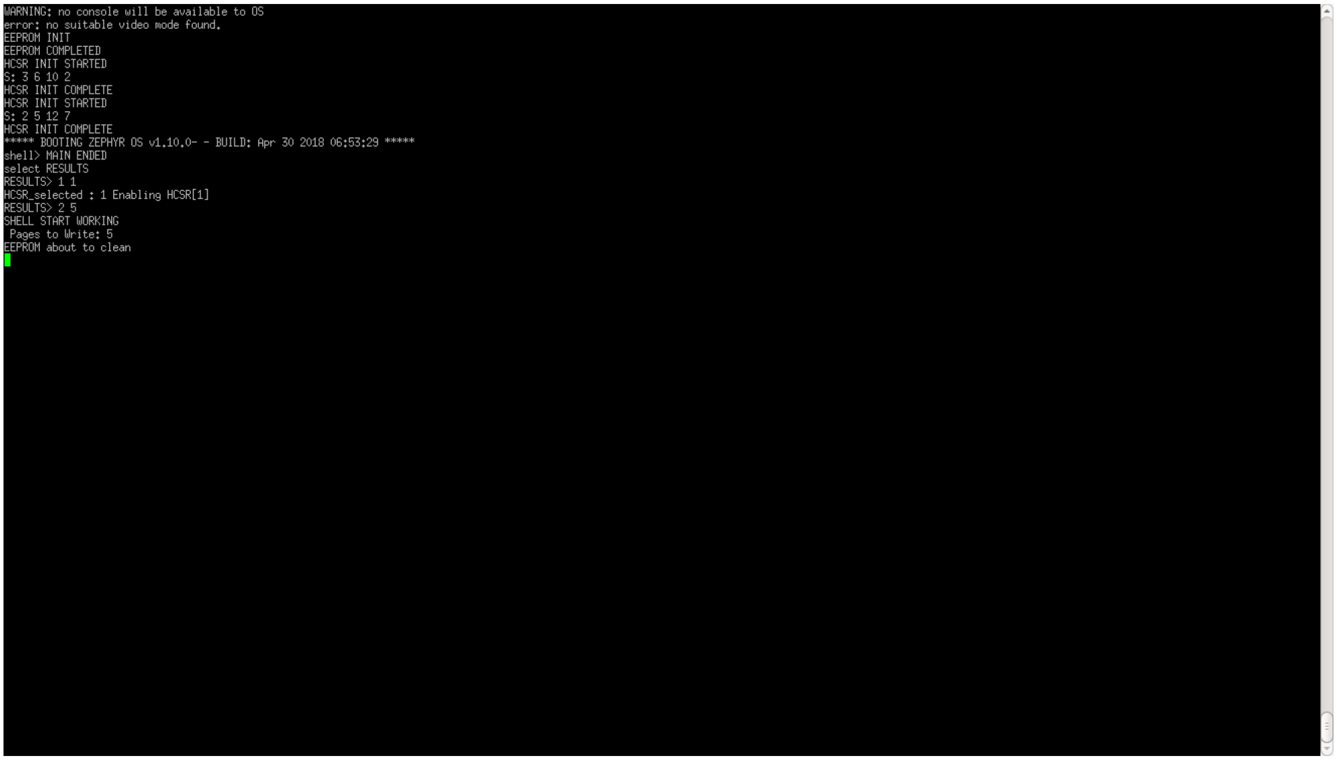
SHELL MODULE

1. Shell Enable: Enabling Shell → HCSR01 Sensor



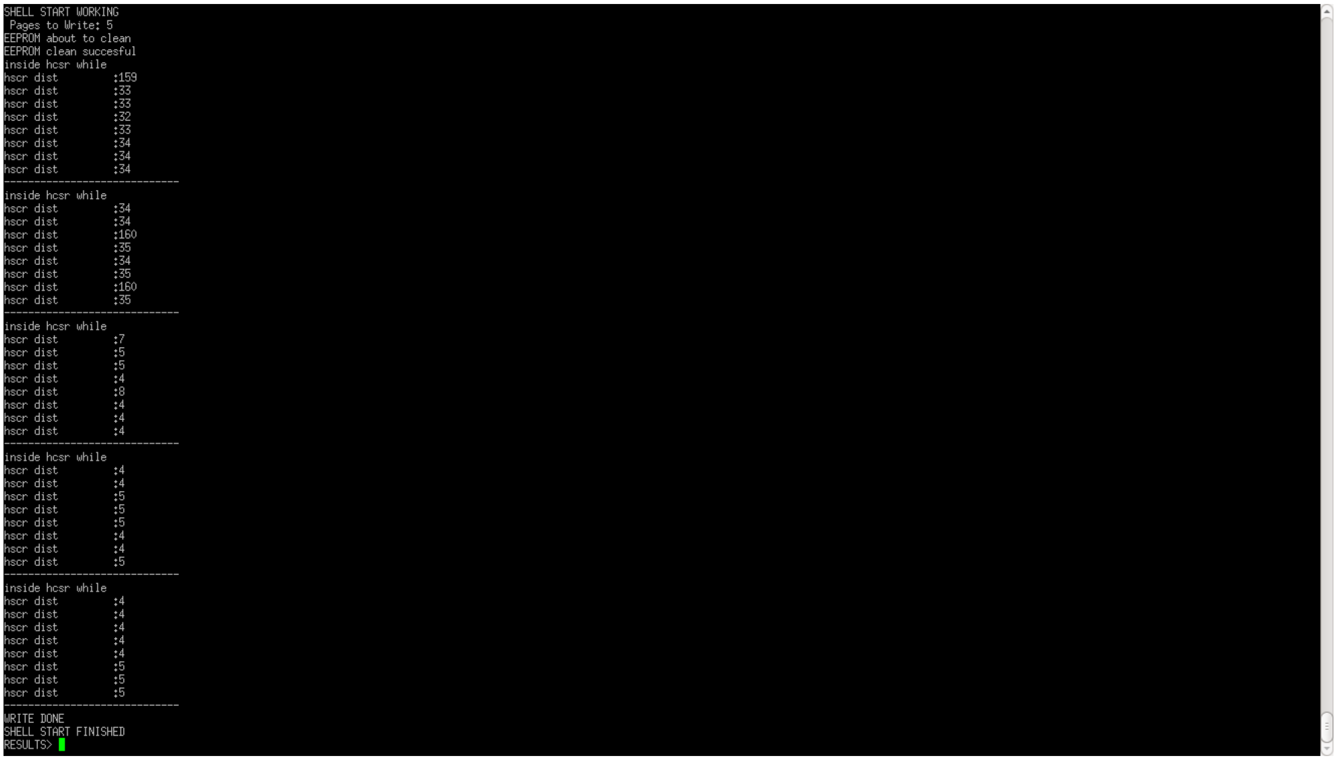
```
WARNING: no console will be available to OS
error: no suitable video mode found.
EEPROM INIT
EEPROM COMPLETED
HCSR INIT STARTED
S: 3 6 10 2
HCSR INIT COMPLETE
HCSR INIT STARTED
S: 2 5 12 7
HCSR INIT COMPLETE
***** BOOTING ZEPHYR OS v1.10.0- - BUILD: Apr 30 2018 06:53:29 *****
shell> MAIN ENDED
select RESULTS
RESULTS> 1 1
HCSR_selected : 1 Enabling HCSR[1]
RESULTS> 
```

2. Shell Start: Cleans the buffer first



```
WARNING: no console will be available to OS
error: no suitable video mode found.
EEPROM INIT
EEPROM COMPLETED
HCSR INIT STARTED
S: 3 6 10 2
HCSR INIT COMPLETE
HCSR INIT STARTED
S: 2 5 12 7
HCSR INIT COMPLETE
***** BOOTING ZEPHYR OS v1.10.0- - BUILD: Apr 30 2018 06:53:29 *****
shell> MAIN ENDED
select RESULTS
RESULTS> 1 1
HCSR_selected : 1 Enabling HCSR[1]
RESULTS> 2 5
SHELL START WORKING
 Pages to Write: 5
EEPROM about to clean
```

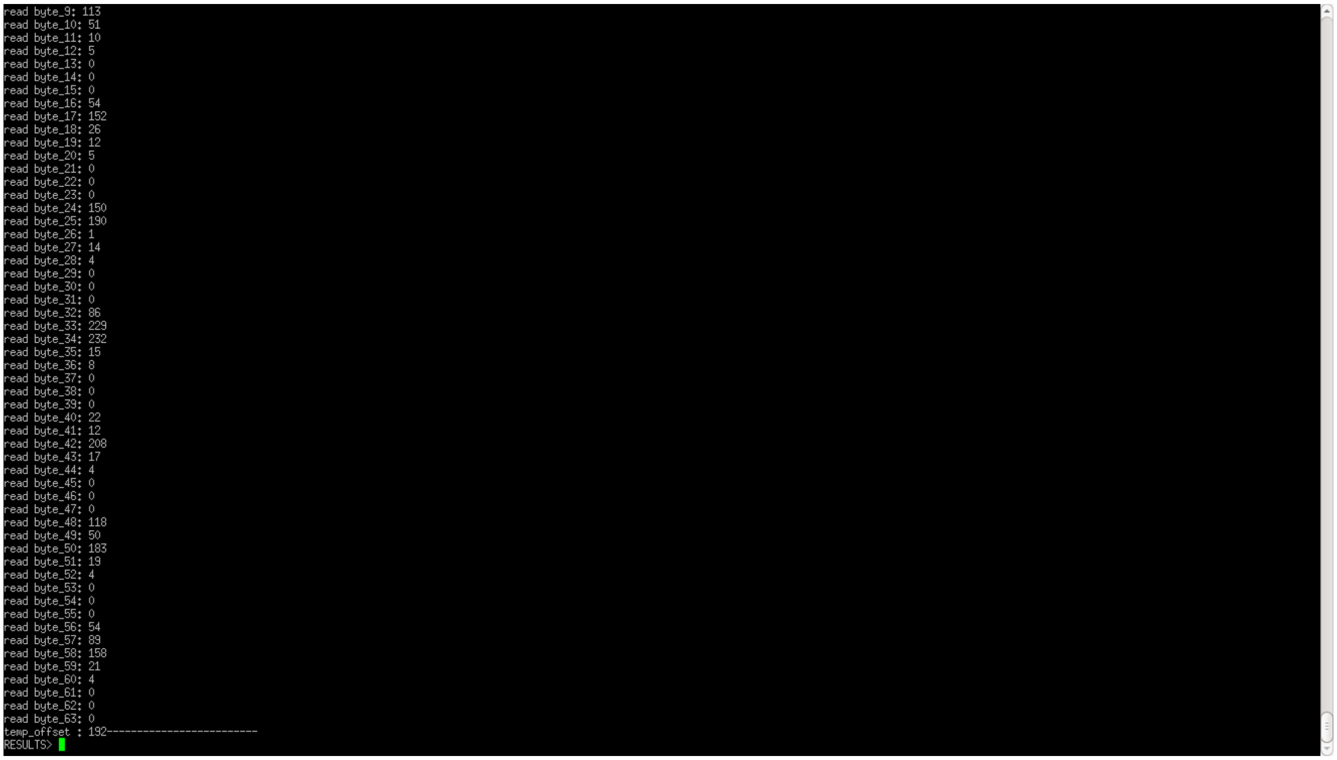
3. Sampling and Storing of the N pages as per user input onto the buffer and using flash_write() to write it to eeprom at appropriate memory.



```
SHELL START WORKING
 Pages to Write: 5
EEPROM about to clean
EEPROM clean succesful
inside hcsr while
hscr dist         :159
hscr dist         :33
hscr dist         :33
hscr dist         :32
hscr dist         :33
hscr dist         :34
hscr dist         :34
hscr dist         :34
-----------------------------
inside hcsr while
hscr dist         :34
hscr dist         :34
hscr dist         :160
hscr dist         :35
hscr dist         :34
hscr dist         :35
hscr dist         :160
hscr dist         :35
-----------------------------
inside hcsr while
hscr dist         :7
hscr dist         :5
hscr dist         :5
hscr dist         :4
hscr dist         :8
hscr dist         :4
hscr dist         :4
hscr dist         :4
-----------------------------
inside hcsr while
hscr dist         :4
hscr dist         :4
hscr dist         :5
hscr dist         :5
hscr dist         :5
hscr dist         :4
hscr dist         :4
hscr dist         :5
-----------------------------
inside hcsr while
hscr dist         :4
hscr dist         :4
hscr dist         :4
hscr dist         :4
hscr dist         :4
hscr dist         :5
hscr dist         :5
hscr dist         :5
-----------------------------
WRITE DONE
SHELL START FINISHED
RESULTS>
```

4. While Reading from memory printing single byte by byte values read and this is then combined into uint32_t to recreate buffer

Please note that in every reading the first four bytes are going to be the 32bit timestamps and the next 4 bytes are the data.



```
read byte_9: 113
read byte_10: 51
read byte_11: 10
read byte_12: 5
read byte_13: 0
read byte_14: 0
read byte_15: 0
read byte_16: 54
read byte_17: 152
read byte_18: 26
read byte_19: 12
read byte_20: 5
read byte_21: 0
read byte_22: 0
read byte_23: 0
read byte_24: 150
read byte_25: 190
read byte_26: 1
read byte_27: 14
read byte_28: 4
read byte_29: 0
read byte_30: 0
read byte_31: 0
read byte_32: 86
read byte_33: 229
read byte_34: 232
read byte_35: 15
read byte_36: 8
read byte_37: 0
read byte_38: 0
read byte_39: 0
read byte_40: 22
read byte_41: 12
read byte_42: 208
read byte_43: 17
read byte_44: 4
read byte_45: 0
read byte_46: 0
read byte_47: 0
read byte_48: 118
read byte_49: 50
read byte_50: 183
read byte_51: 19
read byte_52: 4
read byte_53: 0
read byte_54: 0
read byte_55: 0
read byte_56: 54
read byte_57: 89
read byte_58: 158
read byte_59: 21
read byte_60: 4
read byte_61: 0
read byte_62: 0
read byte_63: 0
temp_offset : 192-------------------------
RESULTS>
```