**Code Description  
LIS302DL 3-axis accelerometer**

1. In **STM32CubeMX**, you must enable **SPI1** to Full-Duplex Master mode and disable Hardware NSS Signal. You will see pin PA5, PA6 and PA7 will be enabled as SPI clock, SPI output and SPI input respectively. Then, you must enable **USART2** to asynchronous mode. You will see pin PA2 and PA3 will be enabled as USART2\_Tx and USART2\_Rx. Finally you can generate file.

|  |  |  |
| --- | --- | --- |
| DR | 0 | 100 Hz output data rate |
| PD | 1 | active mode |
| FS | 1 | enable |
| STP | 0 | normal mode |
| STM | 0 | normal mode |
| Zen | 1 | enable |
| Yen | 1 | enable |
| Xen | 1 | enable |

1. In main.c, before while loop coding, you need to write **CS** (Pin PE3) to low in order to transmit SPI. (set **CTRL\_REG1**(20h) register by this value 0x67)

Then, you need to write **CS** (Pin PE3) to high again.

1. In while loop, you need to read value of **Out\_X**, **Out\_Y** and **Out\_Z** register from accelerometer. So you need to set **CS** to low in order to read from these **SPI** read of X axis value, Y axis value and Z axis value.   
    X axis value = 0x29 OUT\_X address + 0x80 to set READ bit high   
    Y axis value = 0x2B OUT\_X address + 0x80 to set READ bit high   
    Z axis value = 0x2D OUT\_X address + 0x80 to set READ bit high   
   When you read value finish, you will set **CS** to high again.
2. After you have value of X, Y and Z, you need to convert these value into   
   -+ 2g format. The formula is “(value\_of\_each\_axis \* 4000 \*9.8) / 127” and you will keep answer of this formula to integer type. After that, you will use the function **itoa** to keep those integer into array of character and send these array of character to show on your display by **UART** transmit. Then while loop will repeat step 3 to 4 again.