LIS302DL: 3-axis accelerometer

Set up Project configuration in STM32Cube MX

Open LIS02DL Port for our STM32F4

Code in main.c

```
struct acceleration {
  int8_t x, y, z;
} Acceleration;
uint8_t address, data;
```

Create data type for store value from LIS302DL name "acceleration" with 3 int8 x, y and z, and other 2 variables is address and data to store value that use for sending through SPI.

```
static void LIS302DL_Init(void) {
  HAL_GPIO_WritePin(GPIOE,GPIO_PIN_3,GPIO_PIN_RESET);

  address = 0x20;
  data = 0x47;

  HAL_SPI_Transmit(&hspi1, &address, 1, 50);
  HAL_SPI_Transmit(&hspi1, &data, 1, 50);

  HAL_GPIO_WritePin(GPIOE,GPIO_PIN_3,GPIO_PIN_SET);
}
```

function for Initialize LIS302DL. First, toggle CS(PE3) down and send address 0x20 and data 0x47 through SPI1, after toggle CS up again.

In function main()

```
HAL_UART_Transmit(&huart2,"Start",5,1000);
LIS302DL_Init();
```

Begin with transmit data though UASRT as start symbol, then call LIS302DL_Init() to initialize our LIS302DL.

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```
while (1)
{
/* USER CODE END WHILE */

/* USER CODE BEGIN 3 */
  HAL_GPIO_WritePin(GPIOE,GPIO_PIN_3,GPIO_PIN_RESET);

  address = 0x29+ 0x80;
  HAL_SPI_Transmit(&hspi1, &address, 1, 50);
  HAL_SPI_Receive(&hspi1, &Acceleration.x, 1, 50);

  address = 0x2B+ 0x80;
  HAL_SPI_Transmit(&hspi1, &address, 1, 50);
  HAL_SPI_Receive(&hspi1, &Acceleration.y, 1, 50);

  address = 0x2D+ 0x80;
  HAL_SPI_Transmit(&hspi1, &address, 1, 50);
  HAL_SPI_Receive(&hspi1, &Acceleration.z, 1, 50);

  length = sprintf(str, "x : %d, y : %d, z : %d\n\r", Acceleration.x, Acceleration.y, Acceleration.z);

  HAL_UART_Transmit(&huart2, str, length, 10);

  HAL_GPIO_WritePin(GPIOE,GPIO_PIN_3,GPIO_PIN_SET);
  HAL_Delay(150);
}
/* USER CODE END 3 */
```

In while(1). toggle CS(PE3) down and send address 0x29 + 0x80, 0x2B + 0x80 + 0x2D + 0x08 through SPI1 and receive data from SPI that will be acceleration in x, y, z axis in order. After finish retrieving data toggle CS up again.

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