SHT15:
(https://bitbucket.org/dineshravilla/sht15_pic18f4520/src/7b7d85575607bb0c7ec6262ea130bfaa8a9106f3/lib/sht15/?at=master)

Changes in PIC Programming:

1. **Delay Function**
2. **Port Manipulations**

1. Delay Functions:

PIC18f4520 has in-built library, **"delays.h"**, for delay functions. These delay functions depend on the crystal frequency used in the board.

The typical syntax of the delay functions is **"Delay1TCYx(arg)"**;

TCY refers to the instruction cycle.

X implies that 'arg' should be multiplied with the number after 'Delay' in the syntax.

For example, Delay10KTCYx(10) = delay of 10 * 10K * TCY

How to calculate TCY?

TCY depends on the crystal frequency (oscillator).

Let F_{osc} be the crystal frequency.

TCY = $4/F_{osc}$.

4 is because of the internal calculations by PIC.

In the program, internal oscillator of 4MHz is enabled through OSCCON register and by enabling configuration pin, **OSC** to INTIO67.

2. Port Manipulations:

In PIC, TRIS is the register which is equivalent to DDR in AVR.

TRISD = 0xFF; --> Makes all the pins of PORTD as input

TRISD = 0x00; --> Makes all the pins of PORTD as output

In the program, PORTB is used for the SHT15 calculations. This is because PORTB has a feature of Pull-up enabling.

By default pins‹0:4› are configured as Analog inputs for ADCs on Reset. These pins has to be configured as GPIO for the manipulations.

This can be done by:

- Configuring PBADEN (Pin of CONFIG3, Configuration register) as OFF (By default it is ON) and
- By programming making pins RB‹0:4› as digital pins through ADCON1 register. ADCON1 = 0b00001111 will disable all the ADCs and make these pins as digital input/output pins
- Sensor SCL – RB0
- Sensor SDA – RB1

Required CONFIG Parameters:
(https://bitbucket.org/dineshravilla/sht15_pic18f4520/src/7b7d85575607bb0c7ec6262ea130bfaa8a9106f3/lib/config.h?at=master)

OSC: For external oscillator: HS

For internal oscillator: INTIO7 or INTIO67 and OSCCON1 register is to be controlled for required frequency.

WDT: OFF for general programs

PBADEN: For making RB‹0:3› pins as digital I/O pins.