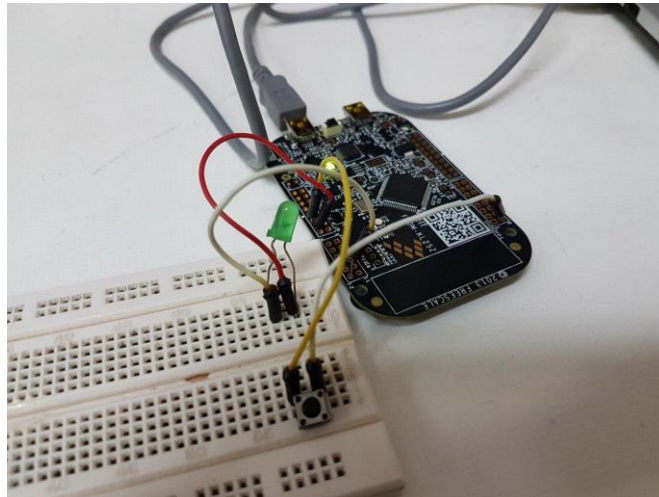


1. In this section, we'll connect a LED and a simple push button to the KL25Z.



The code for evaluating the connection between the led and the board is given below.

```
#include "mbed.h"

DigitalOut myled(LED1);

int main() {
    while(1) {
        myled = 1;
        wait(0.2);
        myled = 0;
        wait(0.2);
    }
}
```

2. In this section, we'll use the PWM module to periodically assign different values to the output. The code is given below:

```
#include "mbed.h"
DigitalIn button(PTA1, PullUp);
PwmOut led(PTC1);

int main() {
    led.period(0.01);
    led = 0.00;
    int i = 1;
    while(1) {
        if(button == 0){
            led = led + 0.20 * i;
            if(led == 1.00 || led == 0){
                i *= -1;
            }
            while(button == 0)
                led = led;
            wait(0.2);
        }
    }
}
```

3. In this section, we employ a two simple variables to control the low and high periods of our artificial PWM module. The code is given below:

```
#include "mbed.h"

DigitalOut led(PTC1);
DigitalIn button(PTA1 , PullUp);
int main() {

    led = 0;
    double LOW_PERIOD = 0.00;
    double HIGH_PERIOD = 0.01;

    int i = 1;
    int j = -1;

    while(1)
    {
        if (button == 0) {

            // Update Periods
            LOW_PERIOD += i * 0.002;
            HIGH_PERIOD += j * 0.002;

            if (LOW_PERIOD == 0.01 || LOW_PERIOD == 0) {
                // Rise and Fall Switch
                i *= -1;
                j *= -1;
            }

            while(button == 0){
                led = 0;
                wait(LOW_PERIOD);
                led = 1;
                wait(HIGH_PERIOD);
            }
        }
    }
}
```