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For my final project I will do MMA8451Q accelerometer over I2C, where LED colors will change depends on the device orientation.

The methods that will be used in this project are:

I2C: communicating with MMA8451Q, will be used to read/write MMA registers’ values

GPIO interrupt: PTA14 (configured as input) will be routed to INT1 signal (output) from MMA. INT1 will be triggered once a motion is detected.

PWM: TPM0 and TPM2 will be used adjust LED brightness depends on xyz, since x y z values are in 14-bit, so TPM->CnV which is a 16 bit value will equal to x y z value. X value will determine CnV of Red led, Y value will determine CnV of Green led, Z value will determine CnV of Green led,

The references will be used for this project are: KL25Z Reference Manual, MMA8451Q data sheet, Dean’s chapter 8.

This project doesn’t need extra hardware since MMA8451Q is already embedded in MCU.

For this project it will be manual test. We will only see color change, and may print xyz-axis values too for manual check.