CMPT 433: Embedded Systems

Bitwise Operations Worksheet

Given the following predefined values where LEDs are active high and buttons are active low:

VALUE

LED0_BIT
LED1_BIT
LED2_BIT
LED_MASK = (1 << LED0_BIT) | (1 << LED3_BIT) | (1 << LED2_BIT)

BTN0_BIT
BTN1_BIT
BTN_MASK = (1 << BTN0_BIT) | (1 << BTN1_BIT)

SPD_BIT_BEGIN
SPD_MASK

Complete the following calculations.

```
_Bool isLed0On =

_Bool isAnyLEDOn =

_Bool areAllLEDsOn =

_Bool isAnyButtonPressed =

_Bool areAllButtonsPressed =
```

```
void turnOnLed0() {

}

void turnOnAllLeds() {

}

void turnOffLed() {

}

void turnOffLeds1And2() {

}

void turnOffAllLeds() {

}

void turnOffAllLedsExcept2() {

}

void toggleLed0() {

}

void toggleAllLeds() {

}

// Assume ints are in the correct format and do not need
// to be converted to/from binary.
int getSpeed() {

}

int setSpeed(int speed)


}
```