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//*****
//
// Function Name      : "user_spi_read"
// Date              : 5/9/20
// Version           : 1.0
// Target MCU        : SAML21J18B
// Target Hardware    : BME680
// Author            : Brandon Cheung, Ishabul Haque
// DESCRIPTION
// This function is passed 4 parameters, only reg_addr, *reg_data and len are
// used in this definition. The MS bit of reg_addr is masked to a '1' in order
// to indicate a read transaction to the BME680. The spi_transfer function
// is first called to pass the register address to be read. It is then called
// a second time to receive the register's data and update *reg_data. If
// len > 1, the register address to be read is auto-incremented and the address
// of reg_data is incremented as well to allow for multiple read transactions.
//
// Warnings          : none
// Restrictions       : none
// Algorithms         : none
// References         : none
//
// Revision History   : Initial version
//
//*****
int8_t user_spi_read (uint8_t dev_id, uint8_t reg_addr, uint8_t *reg_data, uint16_t len) {
    int8_t rslt = 0;                //return 0 for success, non-zero for failure
    reg_addr |= 0x80;                //mask bit 7 to a '1' for a read transaction
    REG_PORT_OUTCLR1 &= 0x80;        //CS = 0 -> BME680 selected
    spi_transfer(reg_addr);           //send control byte with register address
    while (len--) {
        *reg_data = spi_transfer(0);
        reg_data++;
    }
    REG_PORT_OUTSET1 |= 0x80;         //CS = 1 -> BME680 unselected
    return rslt;
}

```