

Electronics Serial Communication-I2C

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SDA and SCL

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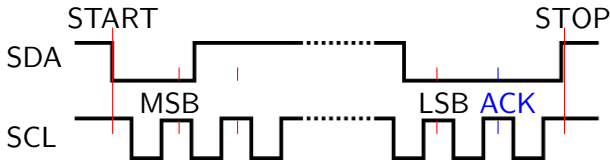
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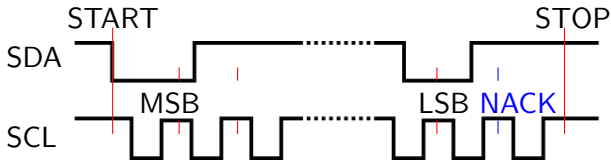
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- Uses 2 signals (and Ground),
SDA and SCL
- Many slaves can be on the same bus since each has an address
Device addresses are pre-programmed, but can usually be changed
- Synchronous, so master controls clock rate



- I²C ; bits are read when SCL is HIGH
- ACK is sent by receiver if OK
sender must release SDA after LSB



- I²C ; bits are read when SCL is HIGH
- NACK is sent by master-receiver if OK
sender must release SDA after LSB



- I²C write to slave register



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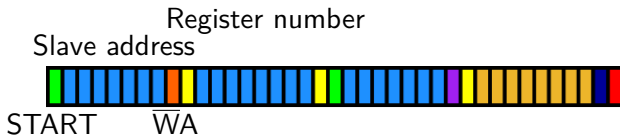
- I²C read from slave register



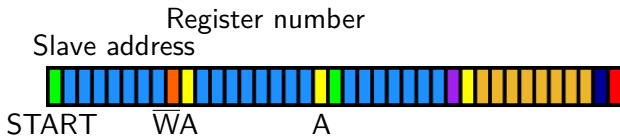
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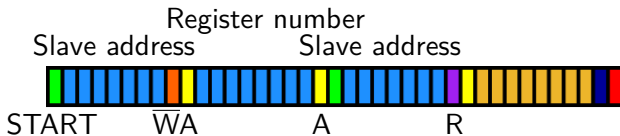
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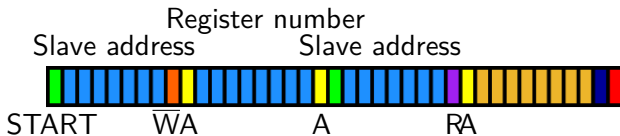
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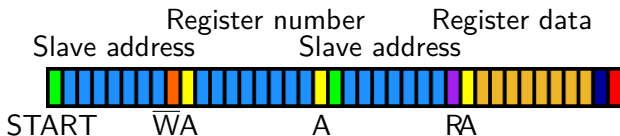
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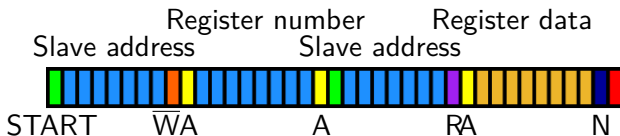
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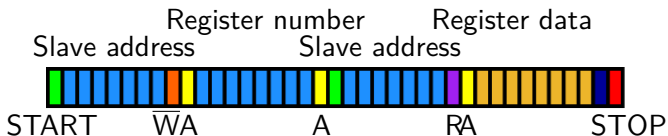
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Smbus

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create object

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read from device
- **bus.write_i2c_block_data(addr,cmd,vals)**
write to device

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```
#!/usr/bin/python
import smbus
bus = smbus.SMBus(1)
DEVICE_ADDRESS = 0x15
DEVICE_REG_MODE1 = 0x00
DEVICE_REG_LEDOUT0 = 0x1d
#Write a single register
bus.write_byte_data(DEVICE_ADDRESS,
    DEVICE_REG_MODE1, 0x80)

#Write an array of registers
ledout_values = [0xff, 0xff,
    0xff, 0xff, 0xff]
bus.write_i2c_block_data(DEVICE_ADDRESS,
    DEVICE_REG_LEDOUT0, ledout_values)
```