UART

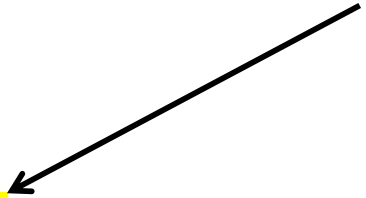
What and Why?

- Universal Asynchronous Receiver/Transmitter
  - tx: Transmit
  - rx: Receive
- Serial communication between microcontrollers
  - 8 bits, 1 bit at a time
- Asynchronous
  - No need to share a common clock

UART Transmission (in RIMS)

```
#include "RIMS.h"

void main() {

    // activate UART
    UARTOn();

    while (1) {

        // Wait for UART transmit ready
        while (!TxReady);

        // Transmit 01100001 serially over the UART output pin
        T = 0x61;
    }
}
```

Similar to a handshake, and the key to asynchronous communication



UART Receiving in RIMS

```
#include "RIMS.h"

volatile unsigned char RxFlag = 0;

// Called automatically when UART receives new data
void RxISR() { RxFlag = 1;  }

void main() {
        UARTOn();

        while(1) {

                // Wait until UART receives new data
                while (!RxFlag);
                RxFlag = 0;

                // Write received data to B output
                B = R;
        }
}
```