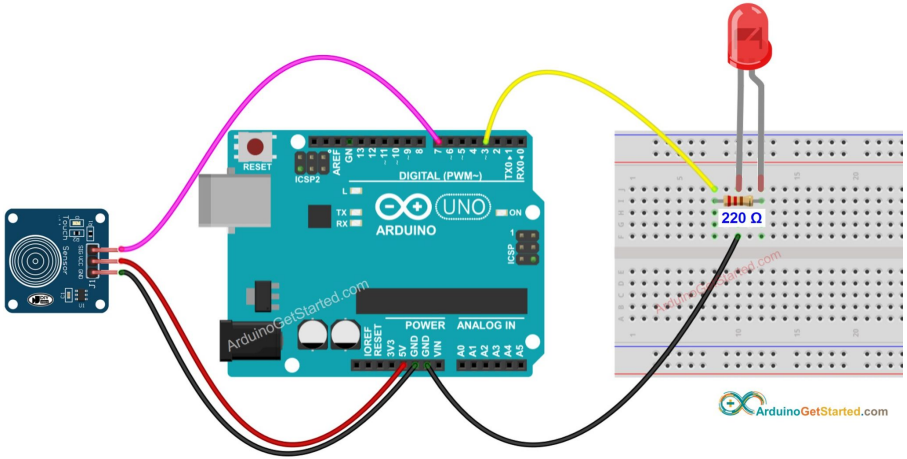
Interface 3: Semester 3

Alex - *Markell* - *Ben*

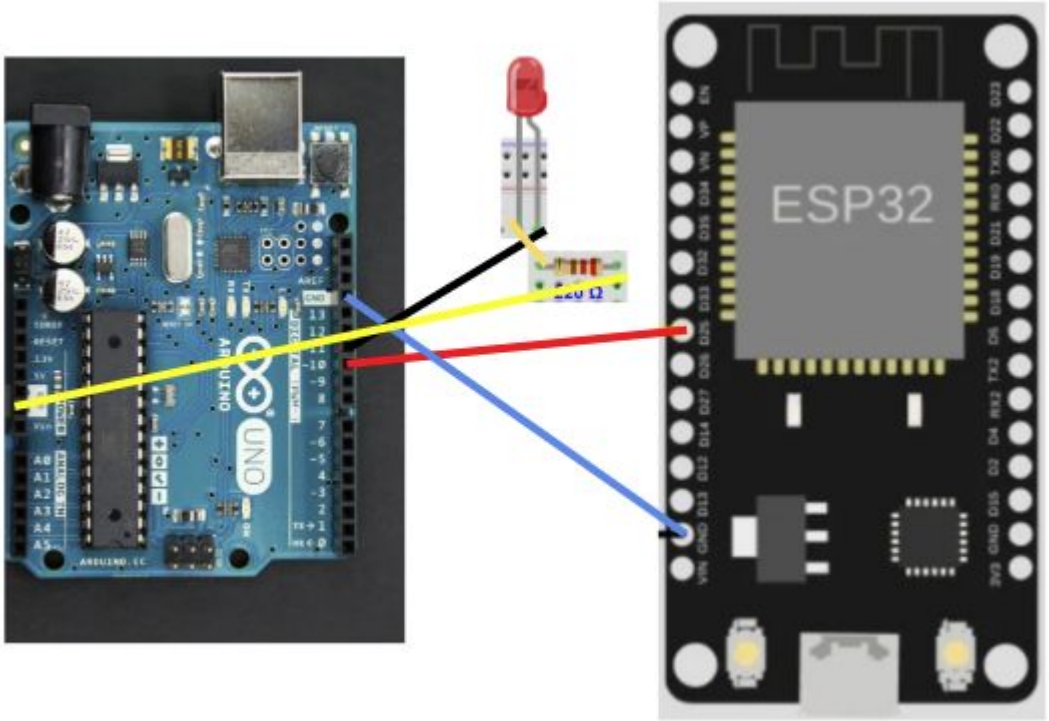
Wiring Design: Arduino



Materials required:

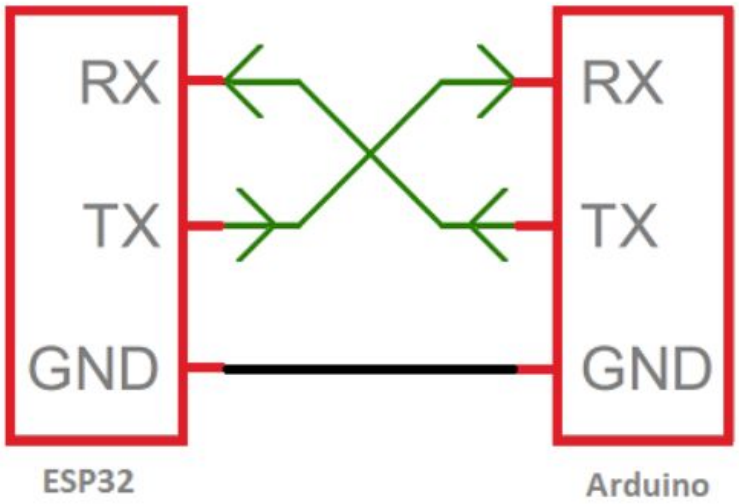
- Arduino Mega
- 5mm LED Bulbs
- 220Ω or 330Ω Resistors
- Power Supply (Battery or Computer)
- Breadboard
- Male to Female Jumper Wires
- Camera

Wired Communication: Digital Read



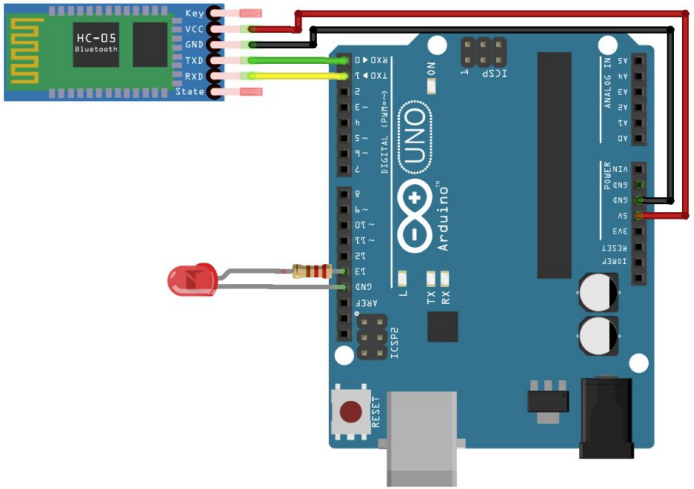
- 1 pin = 1 function
- Measure Volts
- Limited Functions
- Limited Data Transfer
- Easy Implementation
- Great for Simple Events (e.g., turn on/off LED)
- Simple signal communication (e.g., LED is on/off)
- Fast

Wired Communication: UART



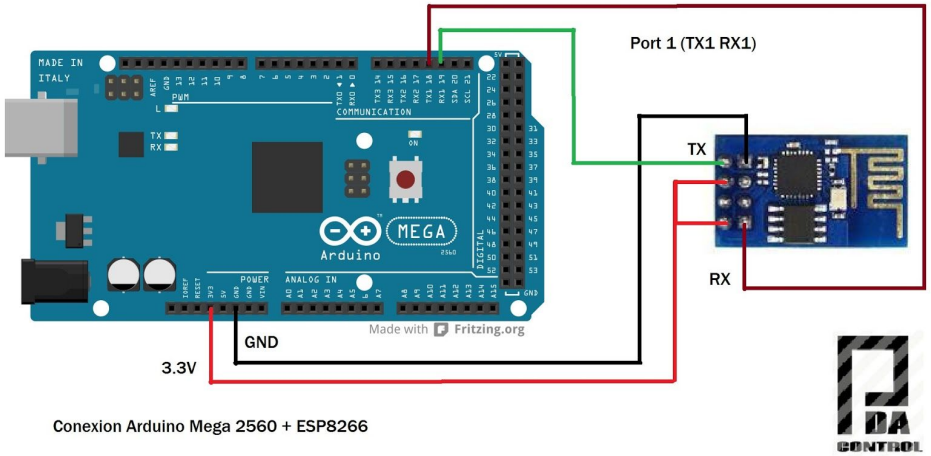
- Error Checking Possible
- Involved Implementation
- Can send bytes, strings, and structured data
- High Data Capacity
- Scalable
- Fast

Wireless Communication: Bluetooth



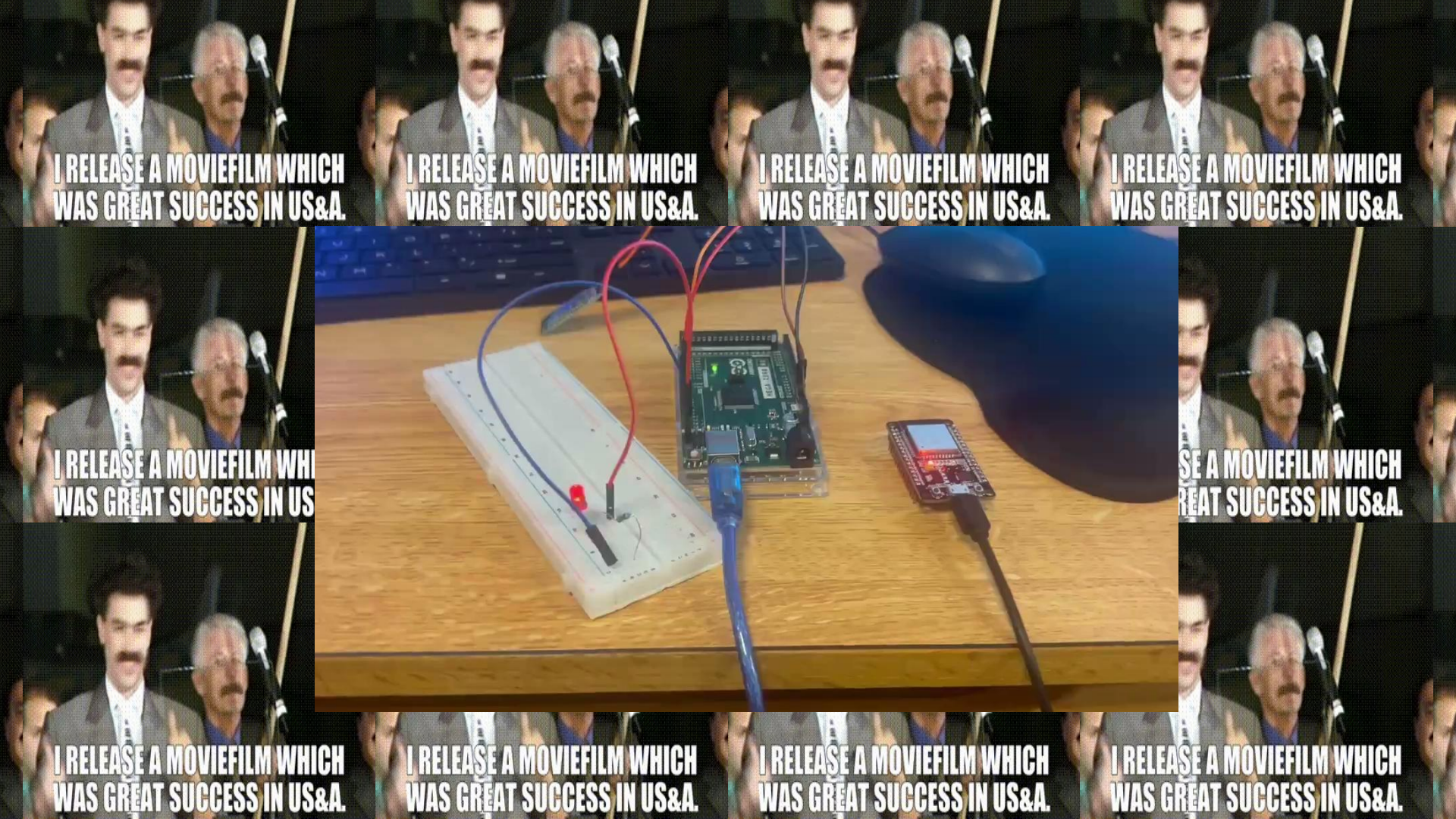
- Short Range (~10m)
- Low Bandwidth (~9600 to 115200 bps)
- Lower Latency
- Can’t transmit video
- Pain in the tuchus

Wireless Communication: WiFi



Conexion Arduino Mega 2560 + ESP8266

- Better Range (~50m)
- Higher Bandwidth (1-10 Mpbs)
- More complex Protocol
- Better Security
- Universal Integration
- Supports video-friendly protocols (TCP/UDP/HTTP/RTSP)


I RELEASE A MOVIEFILM WHICH
WAS GREAT SUCCESS IN US&A.

Big Q: Wired or Wireless?? FPE??

Wireless

- While Wired can be convenient, it is also a fire hazard
- We will use Wireless connection (WiFi) that will control the serial monitors similar to how we used UART Communic
- Webcam integration will be possible if

Droid Cam doesn't end up working

Contributions

Alex

- **This prezentation**
- **Developed Guides for Wired and Wireless Connections**
- **Bluetooth vs WiFi research**
- **Managed and submitted orders to Gemstone**
- **Tracked finances and expenditures**
- **Researched and contacted experts (Dr. Ketelhut) for proposal presentation**
- **FPE Communications**

Markell

- **Wired Connection: Digital Read Assistance**
- **Bluetooth Connection**

Ben

- **Wired Connection: Digital Read**
- **Wired Connection: UART**
- **Bluetooth Connection**
- **Humidity/Temperature Sensor**