

Fundamentals of Physical Computing

Instructor: Rob Faludi

Plan for Today

- Lab Review
- Prototype Presentations
- Serial
- Group Assignment
- Readings & Assignments

Lab Review



Revisions



Serial Communications



Serial vs. Parallel

- How does each work?
- Which needs less wires?

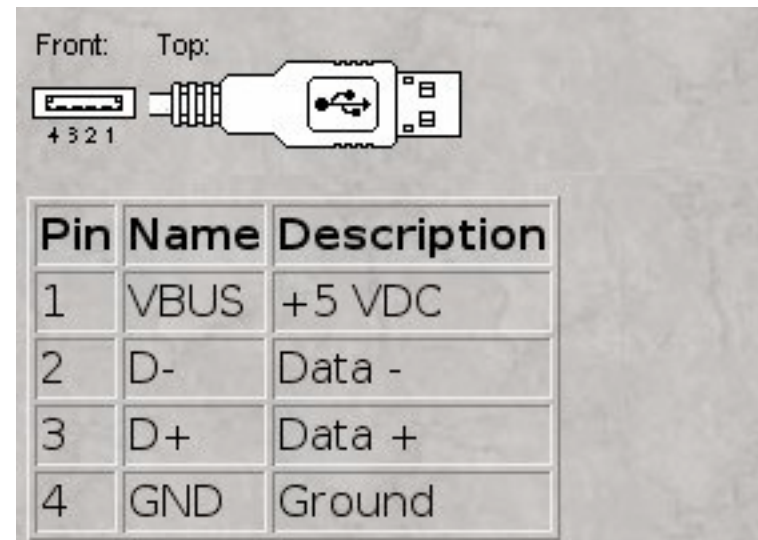


- USB is a new version of the same old thing: Universal Serial Bus



USB

- In and out, one byte at a time
- host controller required



Why Serial?

- Common language
- GPS, microcontroller, computer, printer, cell phone, accelerometer, LCD, text-to-speech

Bytes

- How many bits?
- Largest number in a byte?
- Transmitting numbers
- Transmitting large numbers
- What else can a byte represent?

ASCII

- remember it's a code
- sending letters
- sending numbers

```
02SttY177vwii,,.....:,.,.....,;i7cYct11Yt77U17
'EIC2777Y;;i;..... ..:v2UEOW@#Eb688E2tcnot
'0zSo7cYc7;c;i,,,,,,.i;i;tA$B$E61o1A1AEBWU7oC
ZI1oC1tIO#QWEW8Aci.,.,.,:iiii;;YXC;i.,.:iic780Uxt
InIoE80Q$bU2E0QAo7;iii;.,.ii;ivcntYi7X1;S1Y;iiviYonY
'nzzB@$At;i,.,i;;cno1viii...iicCI7cccY@$M@EEBzc:,.,c11
:Un2BQnY,iictnoS7cic7o7cii,i;7CI;:77 .Ab8977z0Sv:::X1
iSt97vivoWUz#MB@.:;i;9tY;;;71I7:iv;7;i...:,icY;.:;i;1
UvYX;.:z#WX;ZZz7i:77;X27c;.:tI7i,.,.,.i:..:iiivc7
49c;X;.:1Yi,.,.,.iCn Cv;.:zzSYci,i;.:iii;i;iiiv7t
:@Ccv;iv;iii:.,.,.i;vtCSYvi.:Yz157viv;cvcviiiicc;cX
M8Yc;vi;ivcc;.:vc7c77C77;i,.;iYtXtcci;i;i;i;i;iY7t;c
6@I7vicvYvc;wYwvivy7c7Ycii;.:cXY;.:i;i:i;i;i;Y1Sc
```

One Question Quiz

- what is this: 10

Programming with Serial



Arduino Serial Library

- `Serial.begin(speed)`
- `Serial.available()`
- `Serial.read()`
- `Serial.flush()`
- `Serial.print(data)`

Processing Serial Library

- **Serial.list()**
 - Serial.available()**
 - Serial.read()**
 - Serial.readChar()
 - Serial.readBytes()
 - Serial.readBytesUntil()
 - Serial.readString()
 - Serial.readStringUntil()
 - Serial.buffer()*
 - Serial.bufferUntil()*
 - Serial.write()**
 - Serial.clear()
 - Serial.stop()

- ***serialEvent()***

Ports in Processing



Stable Library

=====
Native lib Version = RXTX-2.1-7

Java lib Version = RXTX-2.1-7

[0] "/dev/tty.usbserial-A4001ufz"

[1] "/dev/cu.usbserial-A4001ufz"

[2] "/dev/tty.Blueetooth-Modem"

[3] "/dev/cu.Blueetooth-Modem"

[4] "/dev/tty.Blueetooth-PDA-Sync"

[5] "/dev/cu.Blueetooth-PDA-Sync"

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Final Projects



New Groups!



Grpmxr^{beta}

Which group of students?

Class of 2011

How many groups?

5

How should the groups be named?

Numerically

Mix

Readings and Assignments

- Readings
 - Physical Computing, chapter 7
- Assignment
 - Serial Lab
 - The best way to have a good idea is to have a lot of ideas, so put that into practice by preparing six different project ideas to present to the class. You'll enlist their help to choose one.
 - *Get your labwork and documentation posted!*