Sociable Objects Workshop

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Plan for Today

- Final Project Updates
- ZigBee Internet Gateway
- Product Manual Review
- System Design for Final Projects
- ZigBee Stack
- Profiles Clusters Endpoints
- Readings & Assignments

Final Project Updates

ZigBee Internet Gateway

To use the gateway you need to:

Switch the PAN to AAAA: ATIDAAAA

Set your radio to 115200 baud: ATBD7

Set the destination address to zero: ATDH0 and ATDL0

When you're ready to go, attach the XBee to your Arduino's hardware serial port (pins 0 and 1), then send a URL and you'll get back the response. For example to send your request from Arduino:

```
Serial.println("http://www.faludi.com/test.html");
```

And to read the response back:

```
if (Serial.available()) {
    char inChar = Serial.read();
    print ( inChar );
}
```

Some useful things to know:

- currently supported URL formats (items in [] are optional):

  http://host/path[:port]

  https://host/path[:port]

  ftp://[username:password@]host/path[:port]

- sending help will get the current help file from the gateway
- baud rates lower than 115200 will work if the results you're getting are brief
- the software is still under development and may go offline for improvements from time to time
- right now error messages are displayed raw. You can ignore the specifics which are solely for our debugging

COMMANDS:

help: displays this file

http://<host/path> receives a URL

https://<host/path> receives a secure URL

http://<host/path:port>

https://<host/path:port>

ftp://<host/path>

ftp://<username:password@host & path>

USE:

The recommended speed is 115200 baud which can be set with ATBD7

Lower baud rates may work if you are receiving short responses

The following formats are NOT yet supported:

http://<username:password@host/path>

telnet://<host:port>

mailto:<addr@host>

XBee I/O into a database

ZigBee Internet Gateway Examples

Send a request

Serial.println(“http://itp.nyu.edu/~raf275/testpage.html”);

Seek a character

```
if (Serial.available() > 0) {

        if (Serial.read() == ‘A’) {

           //do something

        }

}
```

zig_download_example.php

- Simple file that produces a numeric value for download
  http://faludi.com/zig/zig_download_example.php

```
<?php
    $value = "A";
    echo $value;
?>
```

Send a value

Serial.println(“http://faludi.com/testpage.php?value=137”);

zig_upload_example.php

- Simple file that records a data upload
  http://faludi.com/zig/zig_upload_example.php?value=43

```
<?php
    $value = $_GET['value'];
    $myFile = "dataFile.txt";
    $fh = fopen($myFile, 'a') or die("can't open file");
    fwrite($fh, $value);
    fwrite($fh, "\n");
    fclose($fh);
?>
```

Read an ASCII decimal value

```
if (Serial.available() >= 3) {

        position1 = Serial.read() - 48;

        position2 = Serial.read() - 48;

        postion3 = Serial.read() - 48;

        value = position1 *100 + position2 * 10 + position3

}

// using a buffer would be more sophisticated
```

Read a phrase

```
char buffer[128], result[128];
int count = 0;


if (Serial.available() > 0) {


        buffer[count] = Serial.read();
        count++;
        if (buffer[count] == '\r') {
              strcopy(result, buffer);
              count = 0; }


}


// additional code would be added to make this work well
```

XBee Product Manual Review

XBee Command Reference Tables

System Design for Final Projects

Readings and Assignments

- Readings
    - ZigBee Stack and Application Layers, pp 21 -24

- Assignments
    - Final Project: Build a prototype and test it. Observe the results