



[1. Overview](#)

[2. Sending Serial Data](#)

[3. Receiving Serial Data](#)

[4. OTAMP](#)

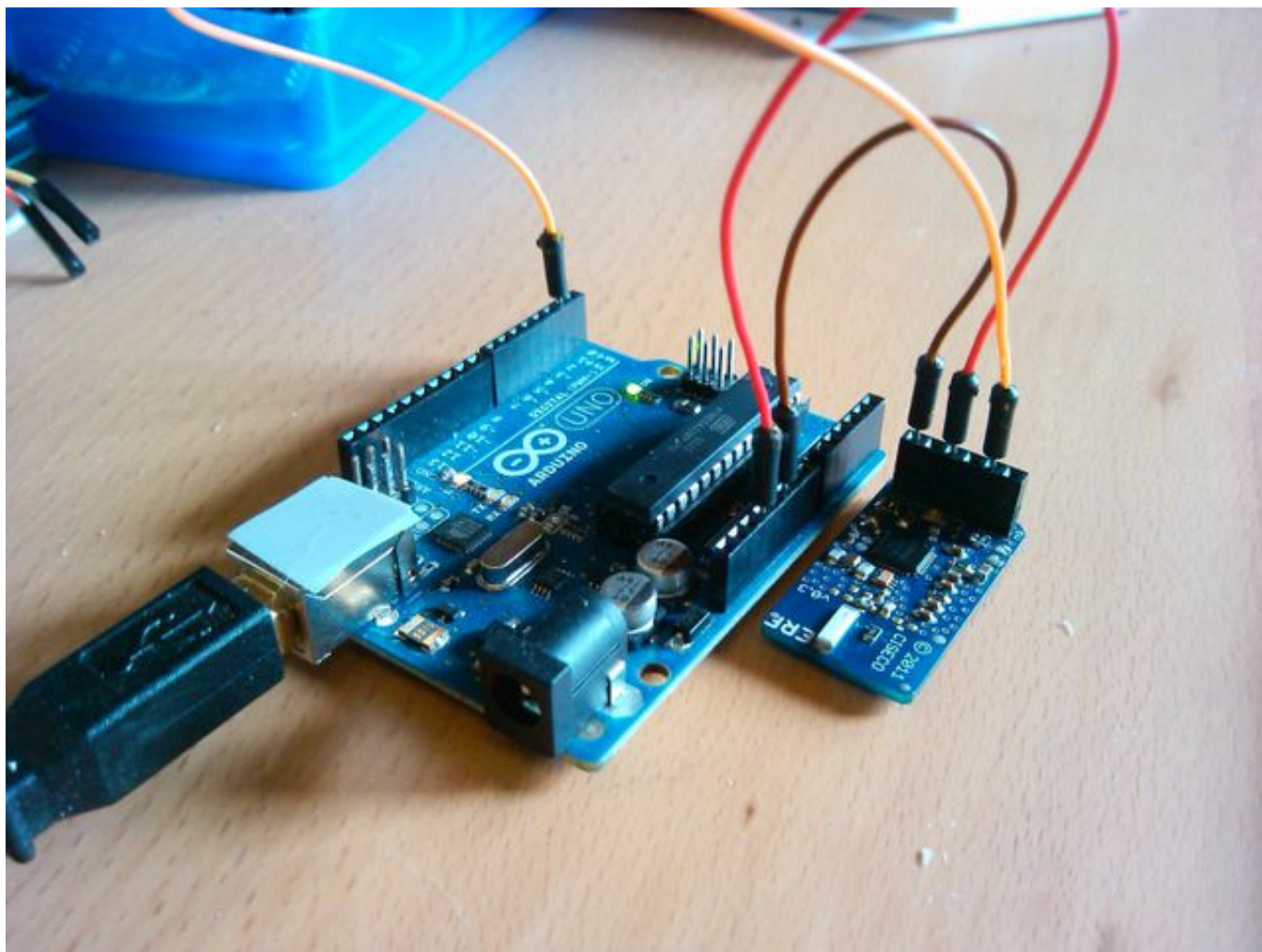
[5. Other Ideas](#)

## 1 Overview

The ERF is a small serial radio module which works like an XRF but, instead of the XRF's 2 x 10 way 2mm connectors, the ERF has a 6 way 0.1" (breadboard compatible) header. The pinout is the same as an FTDI connector, so, in conjunction with a URF, it can be used as a wireless FTDI cable over distances of up to half a kilometre. This article gives you a quick and simple to follow introduction to the ERF. It assumes a basic familiarity with Arduino hardware and software, and that you have either an XRF, URF or another ERF with which to communicate.

## 2 Sending Serial Data

To send serial data via the ERF you simply need to connect Power (PWR), Ground (GND) and Receive (Rx) on the ERF to 3.3V or 5V, GND and Transmit (Tx) on an Arduino.



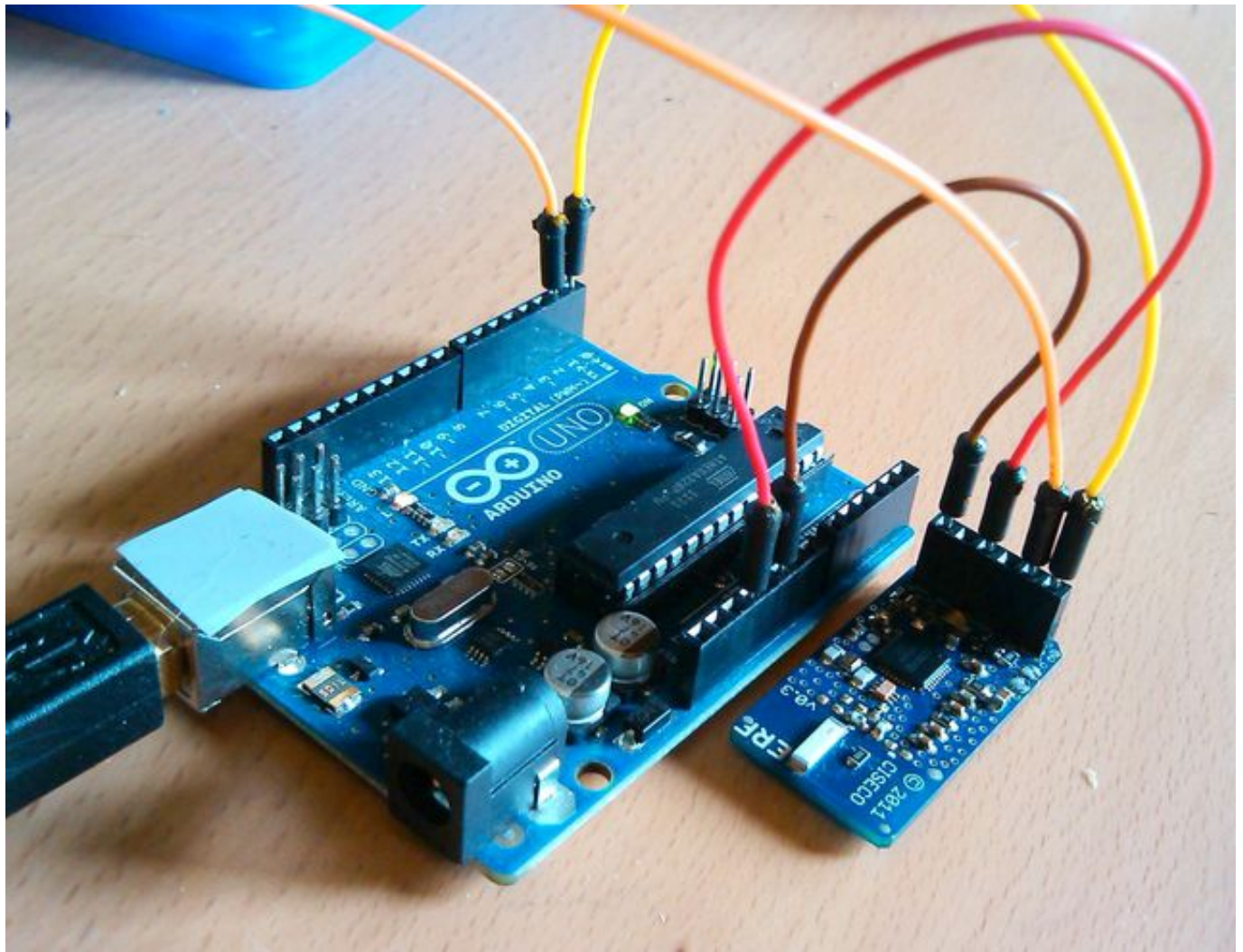
The following example sketch sends the value of pin A0 once a second to the ERF. The ERF then broadcasts this to any radio device (e.g. an ERF, XRF or URF) within range (assuming all the default settings have been unchanged)

```
void setup()
```

```
void loop()
```

## 3 Receiving Serial Data

To receive serial data you will need to connect TX on the ERF to RX on the Arduino



Receiving data is as simple as sending it using the `Serial.read()` command, as it works as if you had a wired connection.

The following is the built in `SerialCallResponse` sketch in the Arduino IDE

```
int firstSensor = 0;  // first analog sensor

int secondSensor = 0; // second analog sensor

int thirdSensor = 0;  // digital sensor

int inByte = 0;       // incoming serial byte

void setup()
```

```
void loop()
```

```
}
```

```
void establishContact()
```

```
}
```

If the associated Processing sketch is run on a PC with a URF connected, then you can use the system totally wirelessly!

## 4 OTAMP

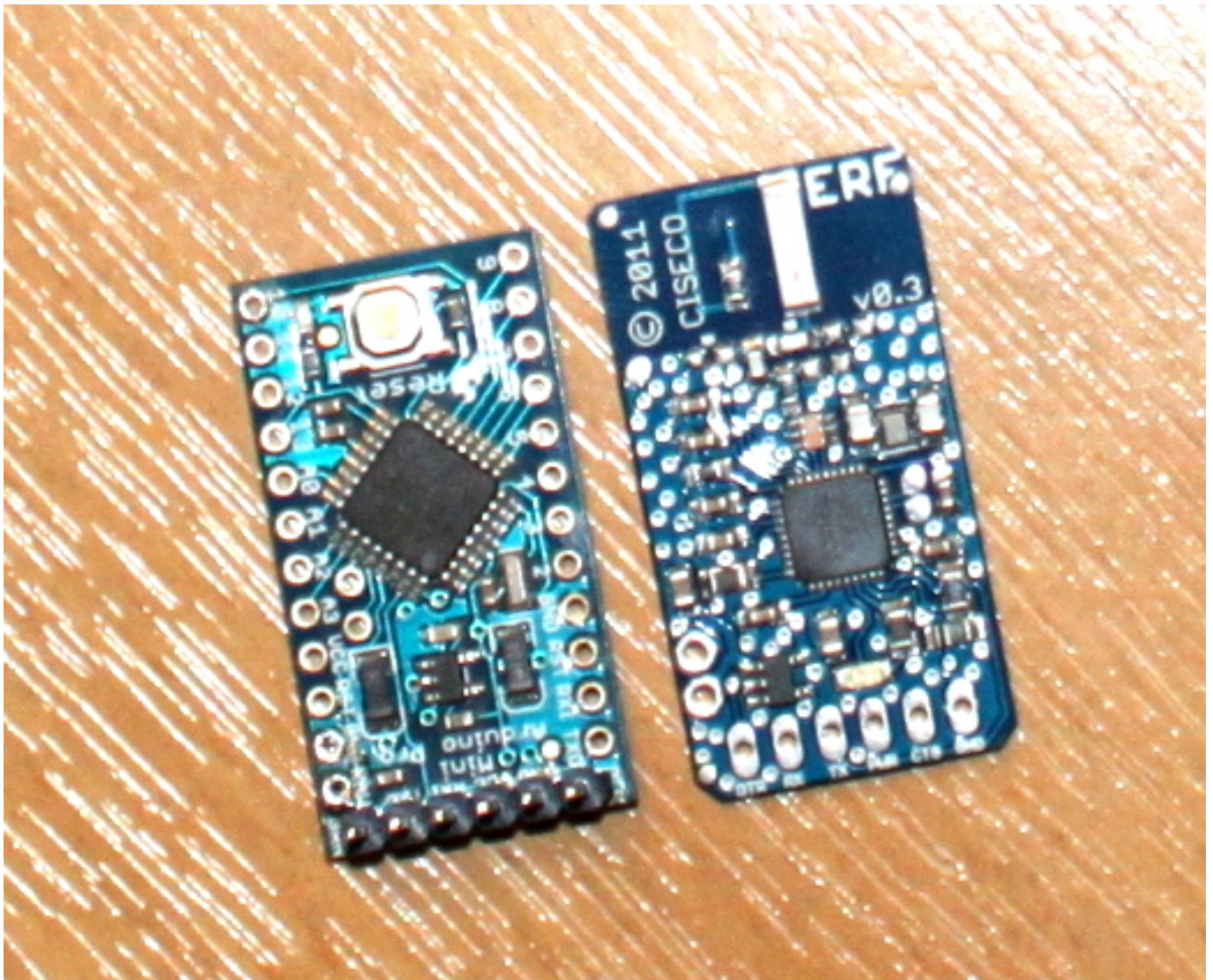
The ERF can be used for Over The Air Micro Programming (OTAMP) in conjunction with an XRF or URF. You will need to set the baud rate, ID and channel hop. For the OpenKontrol Gateway, Arduino Mini, Nanode, and other devices with a 6 pin FTDI connector, it is then just a case of plugging it in or using jumper leads to other devices.

For more detailed information, see this article <http://openmicros.org/index.php/articles/84-xrf-basics/150-otamp>

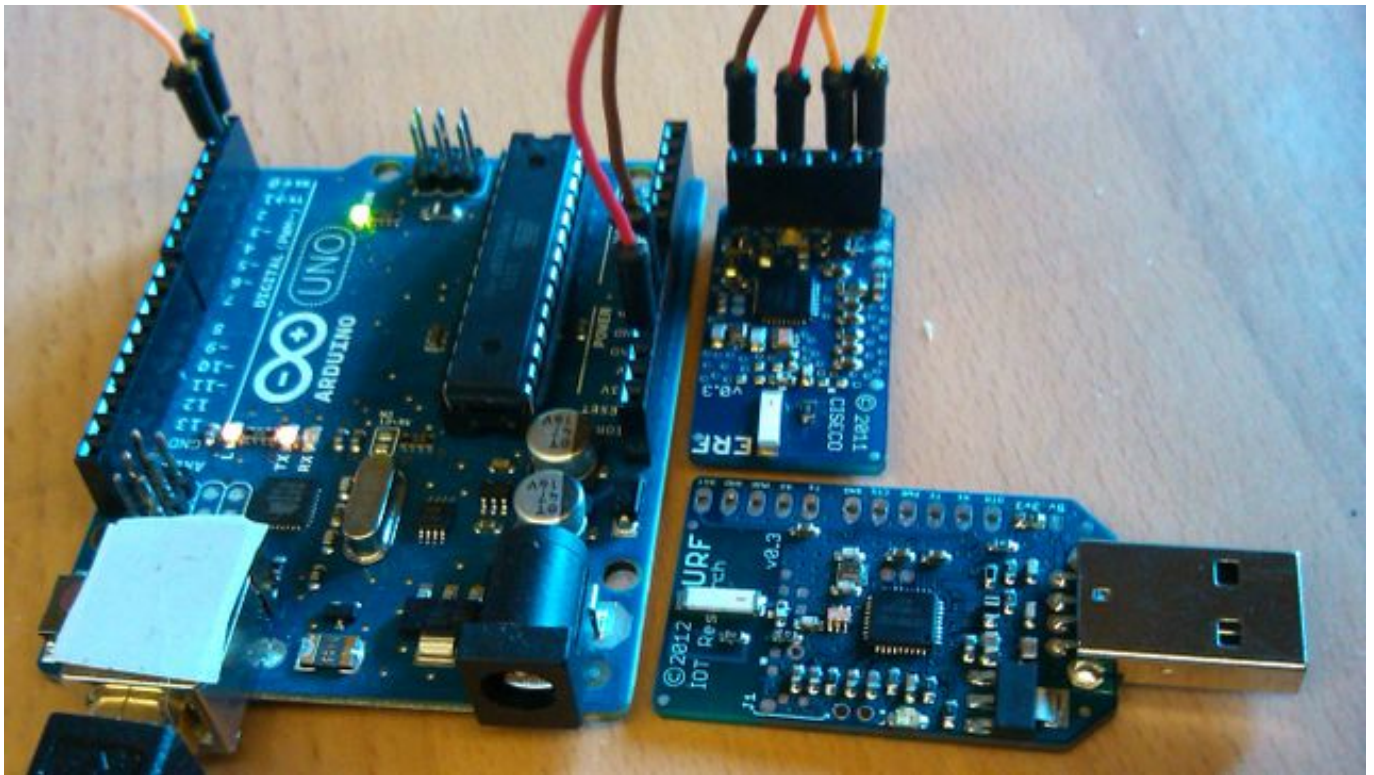
## 5 Other Ideas

The ERF is virtually identical in size to the Arduino Mini, and they work well together, opening up enormous possibilities contained in miniature forms!





What will you do with a micro as powerful as an Arduino, with a wireless range of around half a kilometre????



ERF and URF. The longest FTDI cable you will ever need!