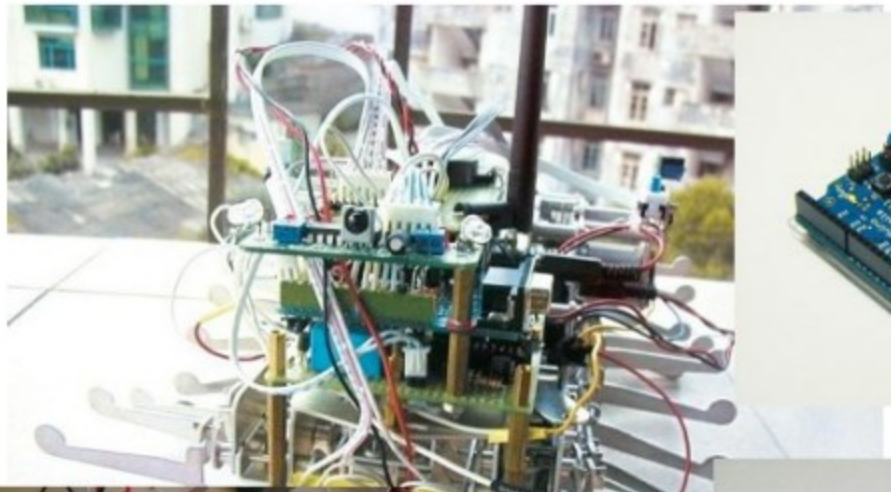
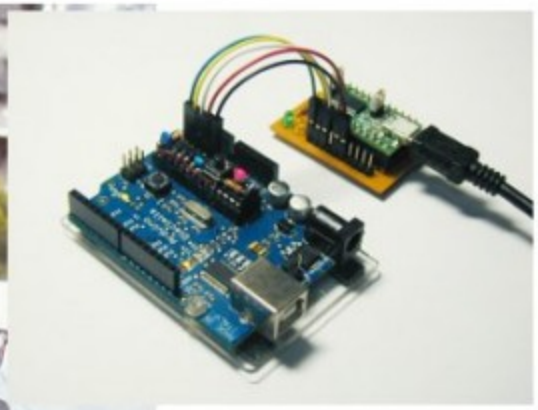
# TinkerForge

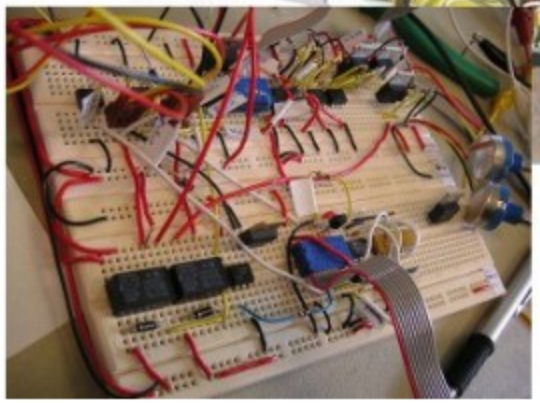
Geertjan Wielenga

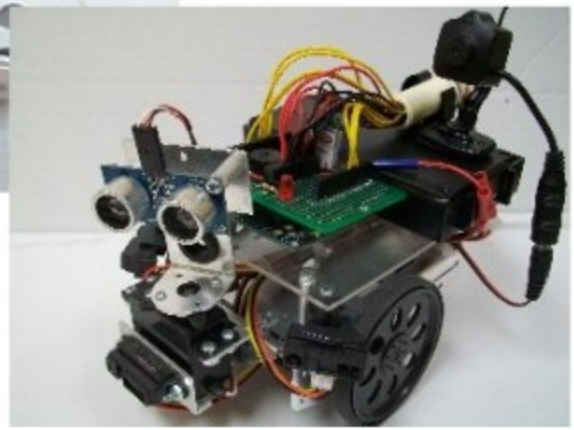
Twitter: @geertjanw

# Electronics can be exhausting







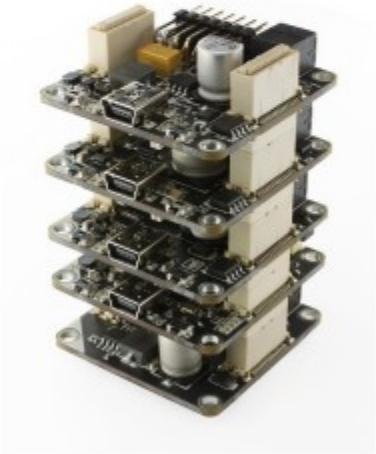


# Electronics can be exhausting

# The idea of Tinkerforge

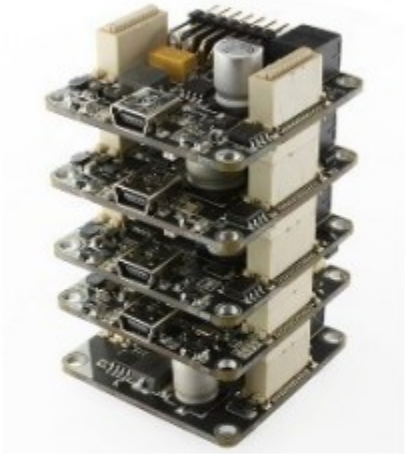
## Electronic Building Blocks

- **Flexible Usage**
  - For Every Purpose One Module
- **No Soldering Necessary**
  - Pluggable Modules
- **No Barriers**
  - Use High Level Programming Languages
  - No Electrical Knowledge Necessary
- **Open Source, Open Hardware**
- **Easy And Fast**
  - Powerful API/Examples

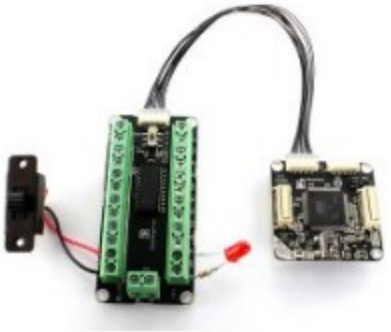


# Tinkerforge - Electronic Building Blocks

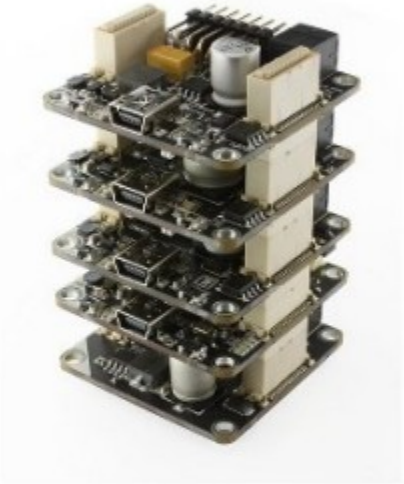
## Bricks

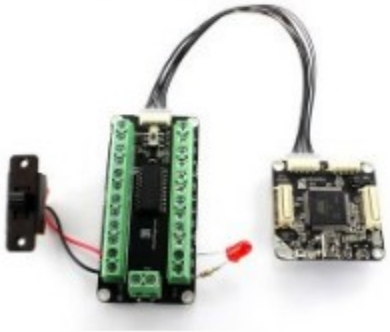


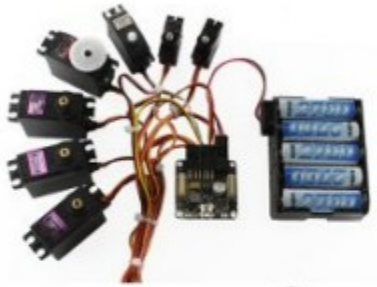
## Bricklets



# Tinkerforge - Electronic Building Blocks







# Tinkerforge - Electronic Building Blocks

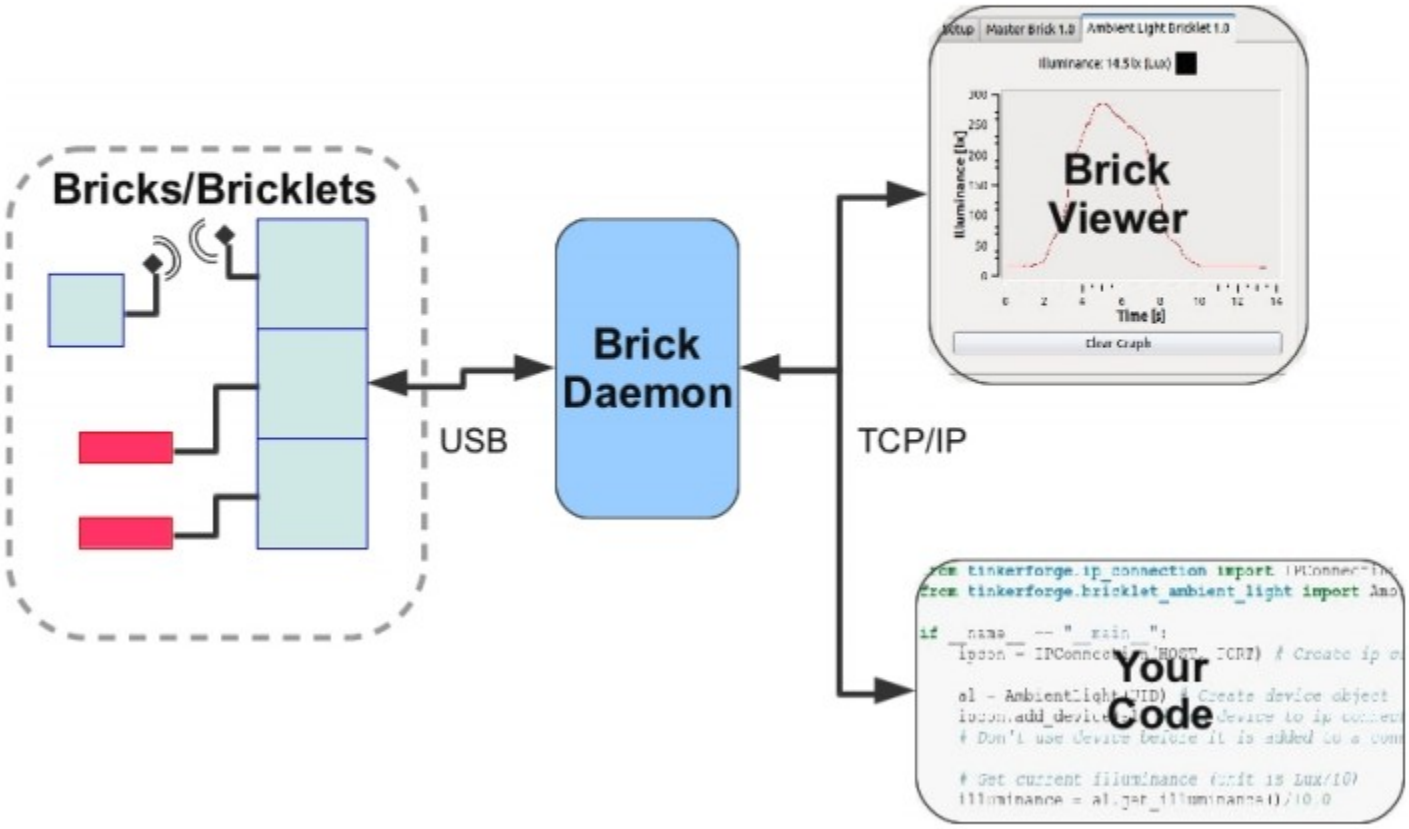
# Programming Interfaces

## High Level Programming Interface

- **Devices are preprogrammed and controlled by a PC**
- Each device has its own unique ID (UID)
- User code controls device by an API
- Currently support:
  **C/C++, C#, Delphi, Java, PHP, Python and Ruby**

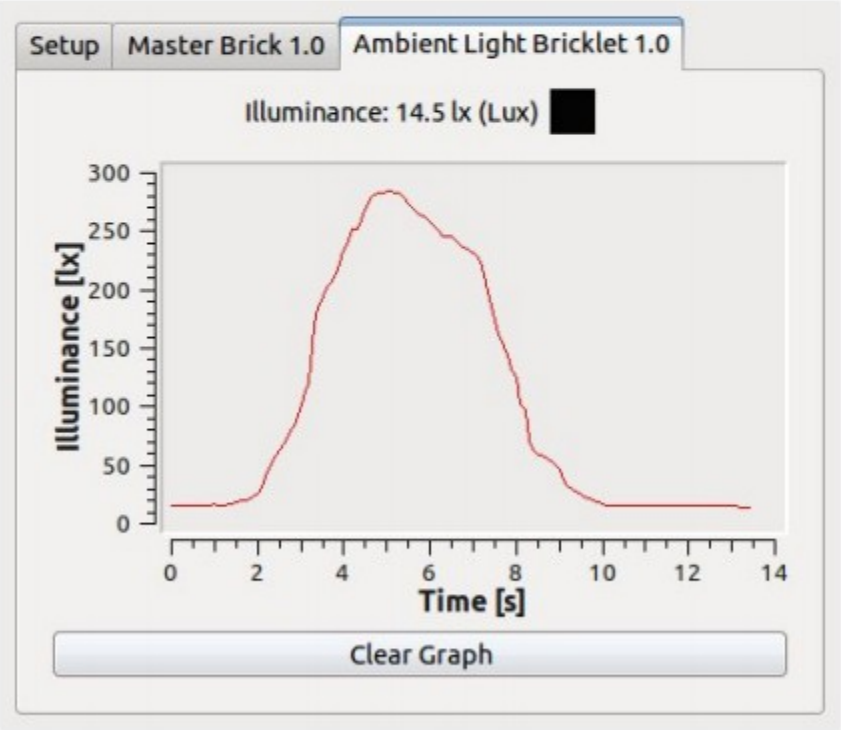
```
stepper = Stepper(UID)
stepper.set_motor_current(800)
stepper.set_max_velocity(2000)
stepper.enable()
stepper.set_steps(60000)
```

# System Architecture



# Brick Viewer

- Test and Debug Tool
- Configure Wireless Connections



# Your Code - Example

```java
import com.tinkerforge.BrickletRotaryPoti;
import com.tinkerforge.IPConnection;

public class ExampleSimple {
    private static final String host = "localhost";
    private static final int port = 4223;
    private static final String UID = "ABC"; // Change to your UID

    // Note: To make the example code cleaner we do not handle exceptions. Exceptions you
    //       might normally want to catch are described in the commnents below
    public static void main(String args[]) throws Exception {
        // Create connection to brickd
        IPConnection ipcon = new IPConnection(host, port); // Can throw IOException
        BrickletRotaryPoti rp = new BrickletRotaryPoti(UID); // Create device object

        // Add device to IP connection
        ipcon.addDevice(rp); // Can throw IPConnection.TimeoutException
        // Don't use device before it is added to a connection

        // Get current position (return value has range -150 to 150)
        short position = rp.getPosition(); // Can throw IPConnection.TimeoutException

        System.out.println("Position: " + position);

        System.console().readLine("Press key to exit\n");
        ipcon.destroy();
    }
}
```

# Your Code - Example

```java
import com.tinkerforge.BrickletLCD20x4;
import com.tinkerforge.IPConnection;

public class ExampleHelloWorld {
    private static final String host = "localhost";
    private static final int port = 4223;
    private static final String UID = "ABC"; // Change to your UID

    // Note: To make the example code cleaner we do not handle exceptions. Exceptions you
    //       might normally want to catch are described in the commnents below
    public static void main(String args[]) throws Exception {
        // Create connection to brickd
        IPConnection ipcon = new IPConnection(host, port); // Can throw IOException
        BrickletLCD20x4 lcd = new BrickletLCD20x4(UID); // Create device object

        // Add device to IP connection
        ipcon.addDevice(lcd); // Can throw IPConnection.TimeoutException
        // Don't use device before it is added to a connection

        // Turn backlight on
        lcd.backlightOn();

        // Write "Hello World"
        lcd.writeLine((short)0, (short)0, "Hello World");

        System.console().readLine("Press key to exit\n");
        ipcon.destroy();
    }
}
```

# More information

## Tools

Here are some recommended tools:

# More information

## Random Products

Bricklet Cable Red 50cm

Price: **€1.19**
As low as: €0.95
Incl. VAT plus Shipping
Learn More

Infrared Sensor 20-150cm GP2Y0A02YK0F

Price: **€13.99**
As low as: €11.19
Incl. VAT plus Shipping
Learn More

Analog In Bricklet

Price: **€5.99**
As low as: €4.79
Incl. VAT plus Shipping
Learn More

Bricklet Cable Black 15cm

Price: **€0.49**
As low as: €0.39
Incl. VAT plus Shipping
Learn More

Distance IR Bricklet

Price: **€5.99**
As low as: €4.79
Incl. VAT plus Shipping
Learn More

WIFI Master Extension

Price: **€59.99**
As low as: €49.99
Incl. VAT plus Shipping
Learn More

2.4Ghz RP-SMA Antenna External (Magnetic Mount)

Price: **€9.99**
As low as: €7.99
Incl. VAT plus Shipping
Learn More

Board-to-Board Connector 30 Pin (Brick Bottom 4.85mm)

Price: **€1.99**
As low as: €0.99
Incl. VAT plus Shipping
Learn More

# More information

## Starter Kit

Availability: In stock

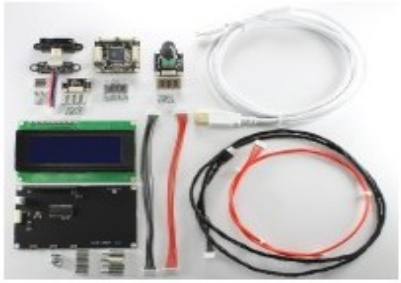
Regular Price: ~~€90.86~~
**Special Price: €84.99**
Incl. VAT plus Shipping

- Buy 10 for **€79.99** each
- Buy 20 for **€74.99** each

Qty: 1
Add to Cart

### Features

- Starter Kit
- Ideally suited to learn programming
- Ideal to play around with Bricks and Bricklets



### Details

This kit is ideally suited for beginners that want to learn a programming language. It is possible to write programs that can sense and interact with the real world, which makes learning a programming language a lot more fun.

For example with this kit it is possible to:

- Control the volume of a PC with the Rotary Poti Bricklet
- Turn the monitor on/off if someone sits down/goes away with the Distance IR Bricklet
- Control the brightness of the Monitor according to the ambient light with the Ambient Light Bricklet
- Show currently played song titles with the LCD 20x4 Bricklet

### More Views




There are a vast options!

The Kit is also suited for people that can program but want to learn the handling of Bricks and Bricklets before plunging in a big and expensive project.

# More information

## Source Code and Bug Tracking

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Previous topic
Technical Data

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Protocol 2.0

Every product that is released by Tinkerforge is Open Source. The firmware source as well as the hardware design files for all Bricks and Bricklets are available. Additionally the source code for all tools, such as the Brick Daemon, the Brick Viewer and the generators for the language bindings is available.

This means you can use all of the Tinkerforge hardware and software as a starting point for your own project, extend or modify it. Furthermore you can help us in the development effort and most importantly report bugs.

To make it easy for the community to commit patches and report bugs, all of the Tinkerforge projects are hosted on Github.

If you don't know git, you can find information here. Our projects can be cloned with:

```
git clone git://github.com/Tinkerforge/PROJECT.git
```

Below is a list of the Tinkerforge project repositories and corresponding bug tracker.

| | Repository | Bug Tracking |
|---|---|---|
| **Tools** | | |
| Brick Daemon | git://github.com/Tinkerforge/brickd.git | Report Bug |
| Brick Viewer | git://github.com/Tinkerforge/brickv.git | Report Bug |
| Brick Bootloader | git://github.com/Tinkerforge/brickboot.git | Report Bug |
| Brick Library | git://github.com/Tinkerforge/bricklib.git | Report Bug |
| Bricklet Library | git://github.com/Tinkerforge/brickletlib.git | Report Bug |
| API Generator | git://github.com/Tinkerforge/generators.git | Report Bug |
| Kicad Libraries | git://github.com/Tinkerforge/kicad-libraries.git | Report Bug |

# More information

## CHIP AWARD 2012 - Product of the Year

written by admin, on Mar 8, 2012 2:25:00 PM.

Yesterday we were at the CeBIT, invited by the CHIP Magazine, to take part at the award ceremony of the CHIP AWARDS. Unexpectetly we were allowed to take the price for “Product of the Year 2012″ home! The Awardees of the “Product of the Year” category in 2011 and 2010 were the major players Lufthansa and Panasonic, now it is Tinkerforge :-).

A video of the award ceremony can be viewed on website of Chip (video is in english).

# More information

More information on:

www.tinkerforge.com