



# Scratch & Arduino

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Robotertage -> AsuroScratcher -> BYOB ->  
Firmata -> Arduino ->



# Robotertage

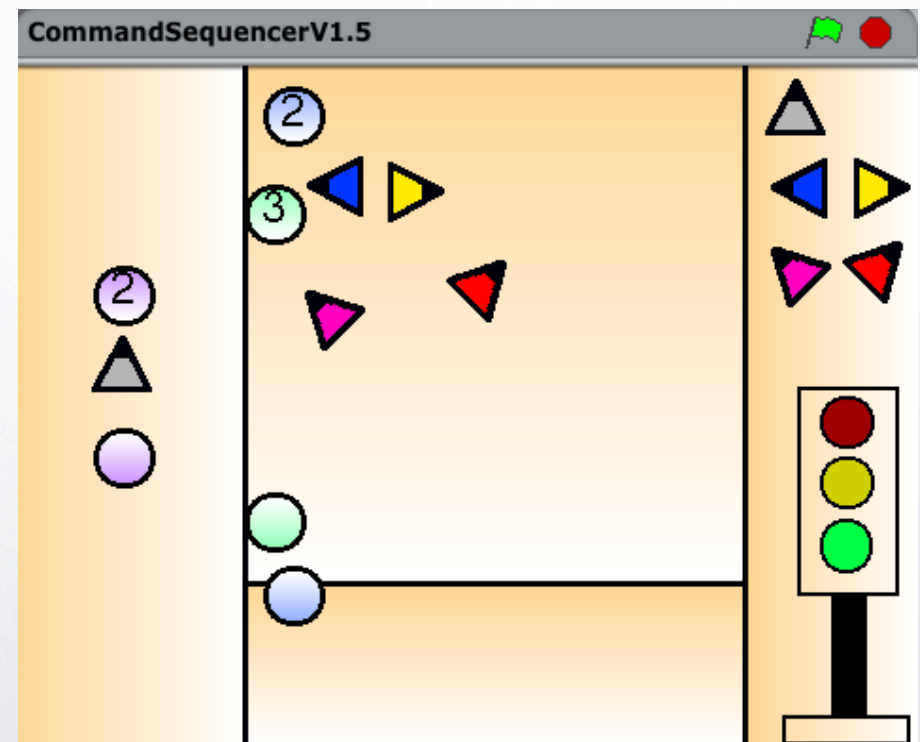
- Projekttag im Kindergarten (Vorschule) und Schule (erste Klasse)
- ohne Lese- und Schreibkenntnisse
- Programmieren
- nicht nur





# AsuroScratcher

- Scratch Remote Network Connections
- Turtle-“Kommandos“
- per IR an Asuro
- Was nervt?
  - viele Komponenten
  - fehleranfaellig





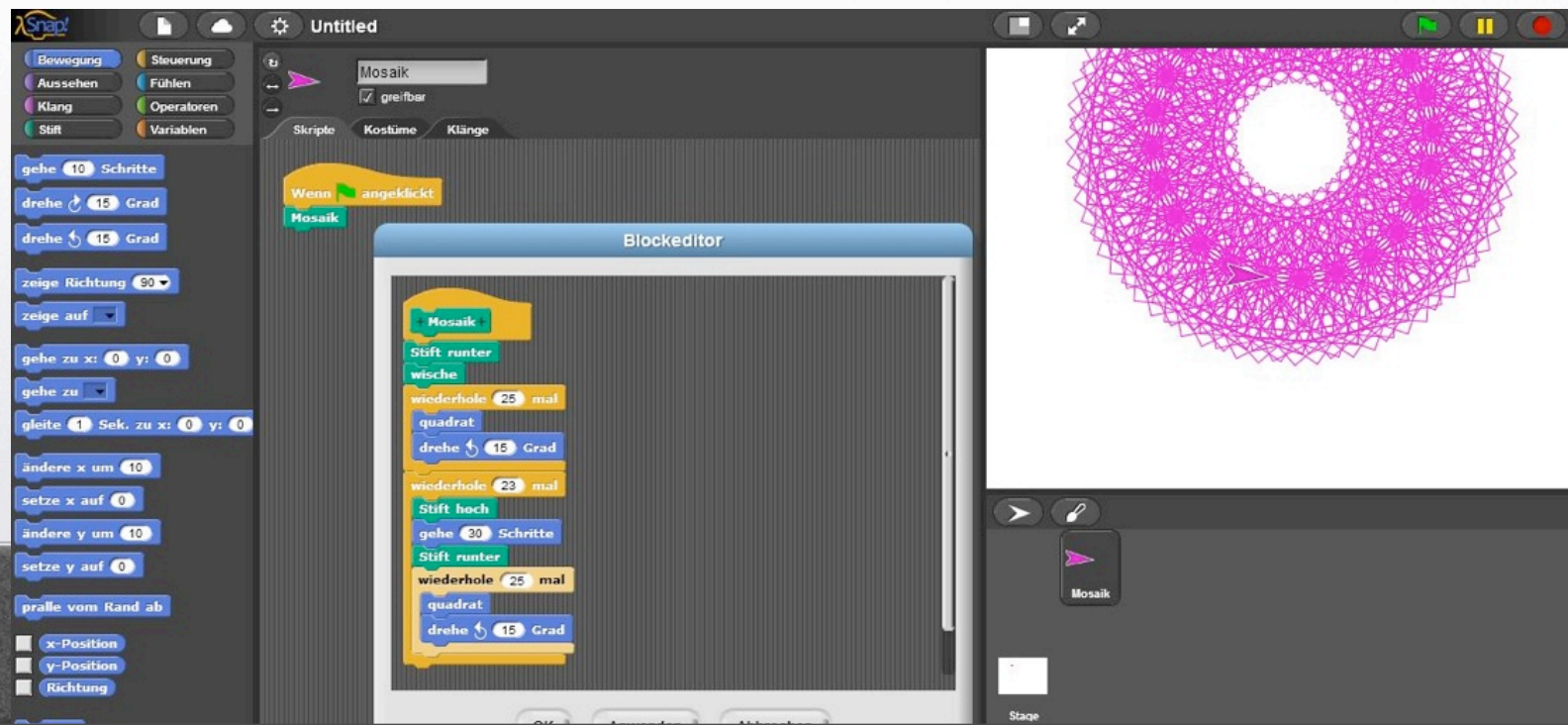
Anja & Oliver





# BuildYourOwnBlocks

- BYOB/Snap! sind Erweiterungen von Scratch, die es erlauben eigene Bloেকে anzulegen





# Firmata

- Protokoll zur Kommunikations zw. PC und Mikrocontroller
- Fuer Arduino verfuegbar
- [https://github.com/MrYsLab/s2a\\_fm/](https://github.com/MrYsLab/s2a_fm/)  
(Python)

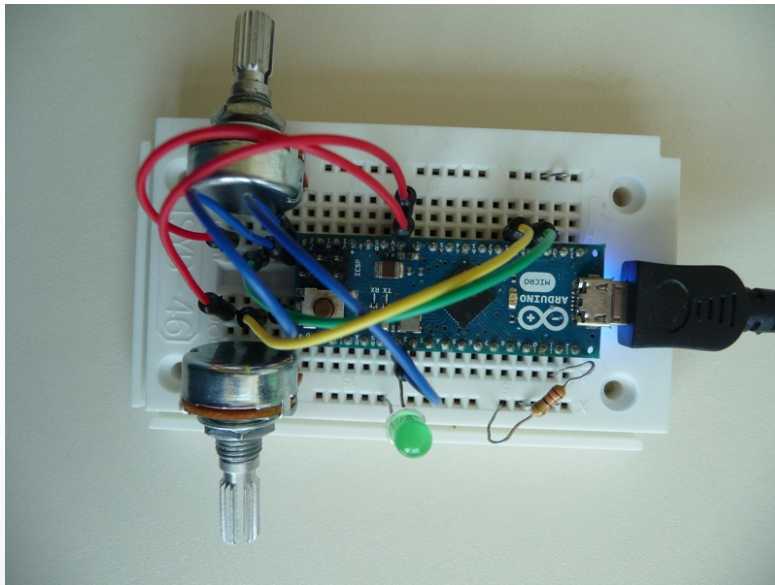
## s2a\_fm







# Arduino



```
File Edit Sketch Tools Help
Blink
/*
 * Blink
 * Turns on an LED on for one second, then off for one second, repeatedly.
 * This example code is in the public domain.
 */

// Pin 13 has an LED connected on most Arduino boards.
// give it a name:
int led = 13;

// the setup routine runs once when you press reset:
void setup() {
  // initialize the digital pin as an output.
  pinMode(led, OUTPUT);
}

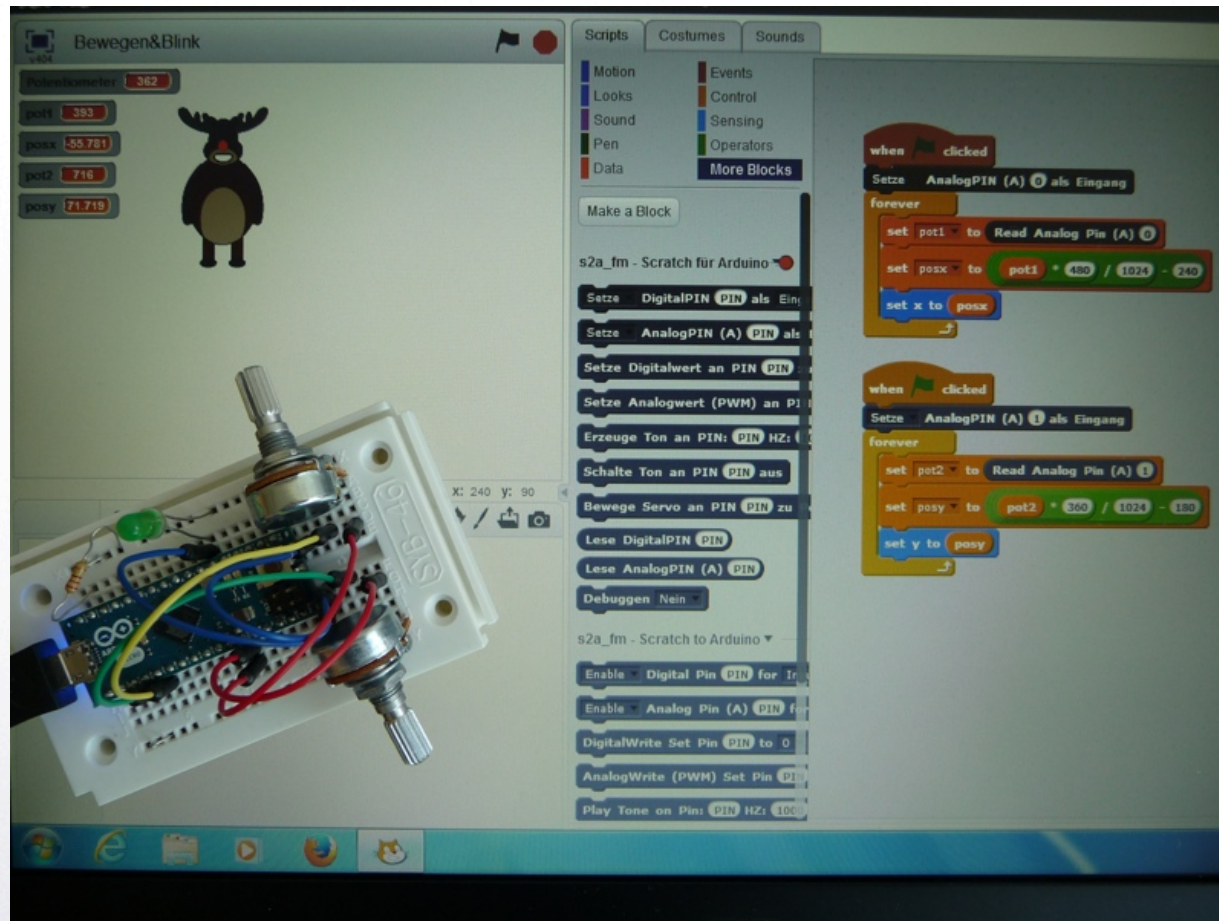
// the loop routine runs over and over again forever:
void loop() {
  digitalWrite(led, HIGH); // turn the LED on (HIGH is the voltage level)
  delay(1000);             // wait for a second
  digitalWrite(led, LOW);  // turn the LED off by making the voltage LOW
  delay(1000);             // wait for a second
}
```

- Mikrocontroller-Plattform
- Programmierumgebung (C)





# Scratch & Arduino





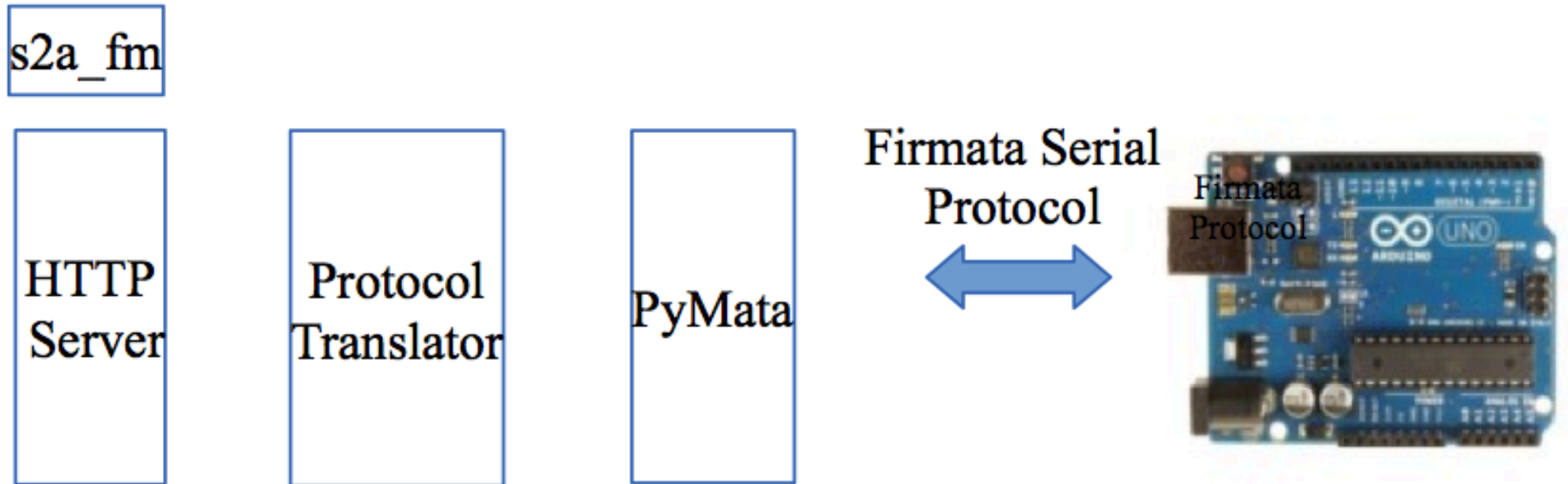


# Demos

- Demo1: Turtle-Grafik mit "eigenen Bloecken" in SNAP! (Anja)
- Demo2: eigene Bloecke mit Parameteruebergabe in BYOB (Oliver)
- Demo3: Arduino Ports lesen und schreiben in Scratch 2.0 mit s2a\_fm (Anja)
- Demo5: Spiel in Scratch - klassisch per Maussteuerung (Oliver)
- Demo6: Spiel in Scratch mit Steuerung per Potis am Arduino (Oliver)



# s2a\_fm



„A Scratch Hardware Extension for Arduino“