

LFE Medieninformatik • Robert Kowalski

Prototyping in physical computing – Sketching in Hardware

Medieninformatik Hauptseminar
Wintersemester 2009/2010
„Prototyping“





1

Introduction and motivation

2

Problem of high toolkit diversity

3

Introduction of several toolkits

4

Round up and conclusion



1

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Introduction and motivation

Prototyping?

Physical Computing?

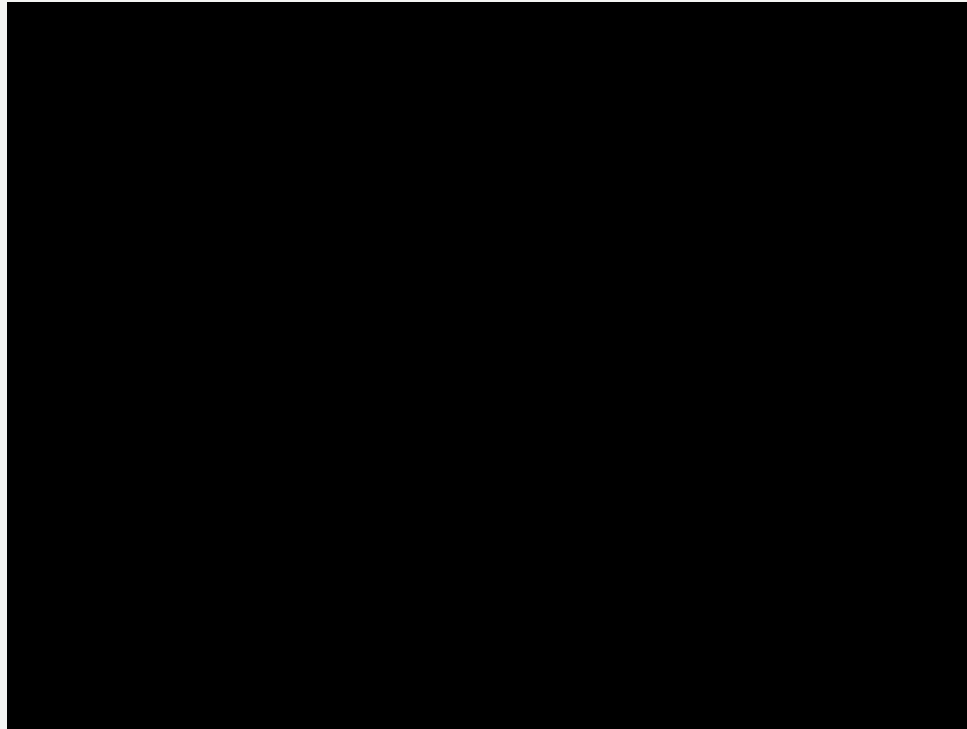
Hardware Sketching?

What is it good for?



Introduction and motivation

- What is it good for?





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Problem of high toolkit diversity

Arduino Calder Toolkit Beagle Board

Barebone BasicStamps iStuff

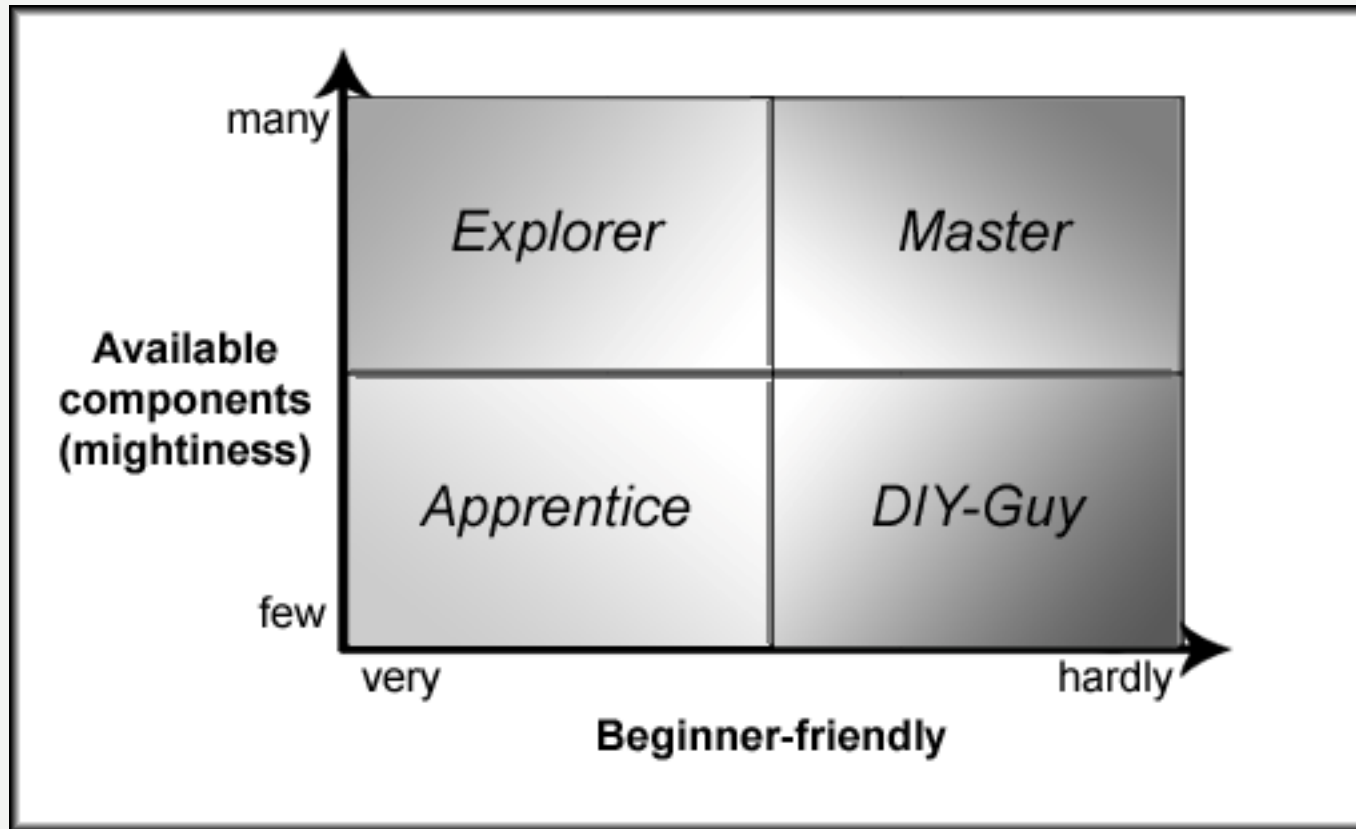
BUG I-CubeX Lego Mindstorm

Gainer Wiring NADA Sketchtools

littleBits Make Controller

Smart-Its Phidgets

Solution



Source: own illustration



1

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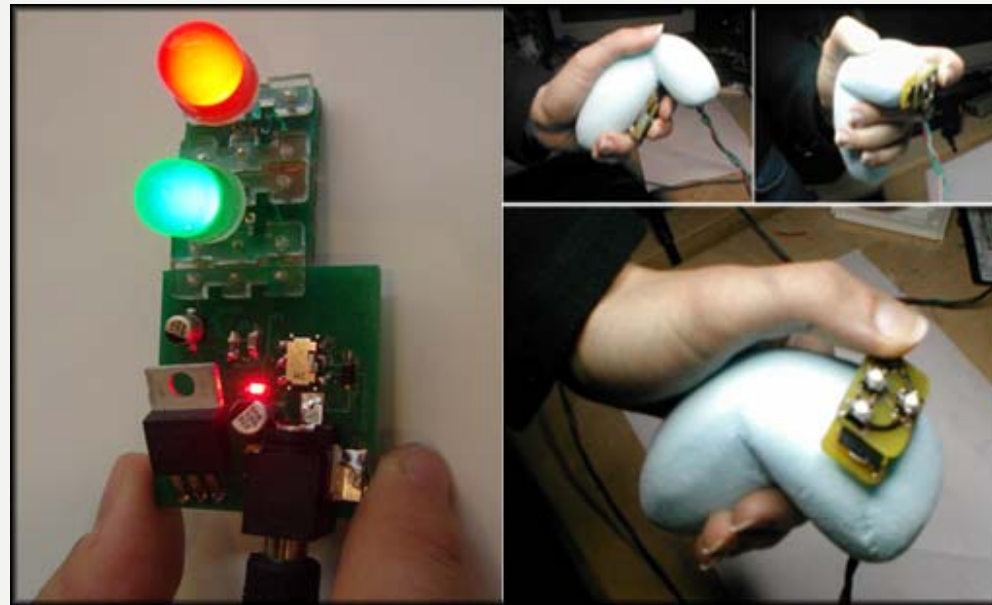
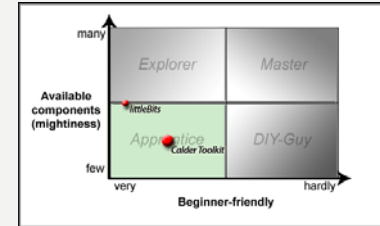
Examples for Apprentice profile

- littleBits

- Playful approach
- Many small stand alone entities

- Calder Toolkit

- Focus on aesthetic design aspect
- Hot plugging



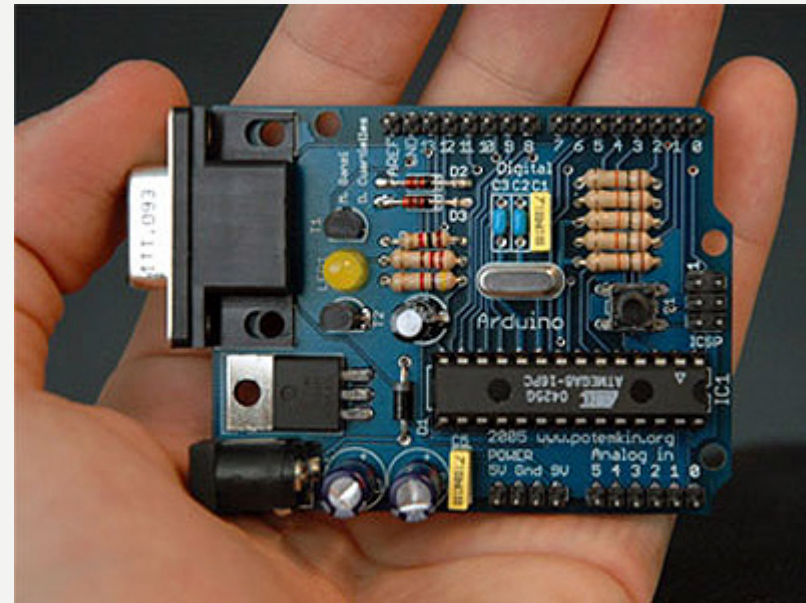
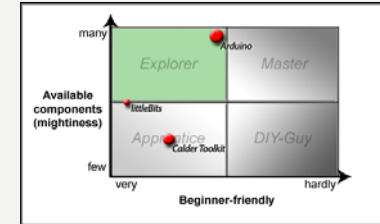
Source:

<http://www.littlebits.cc/>,

The Calder Toolkit: Wired and Wireless Components for Rapidly Prototyping Interactive Devices

Example for Explorer profile

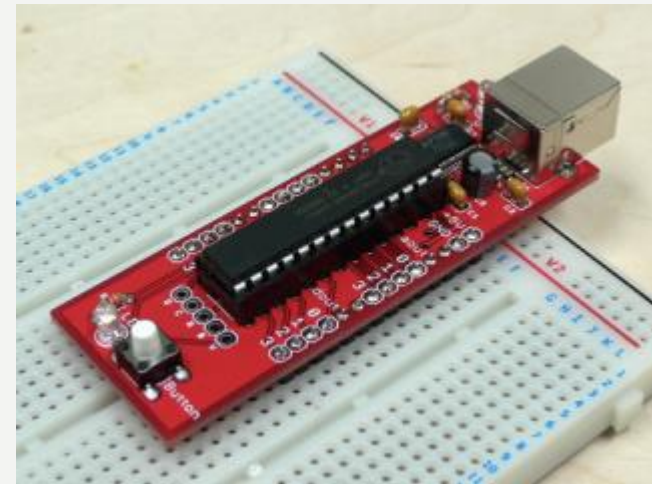
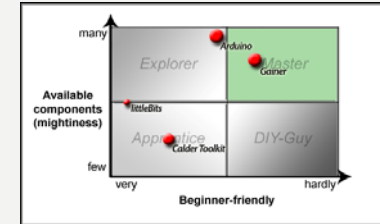
- Arduino
 - Very successful
 - Extension via “shields“



Source:
<http://www.arduino.cc>

Example for Master profile

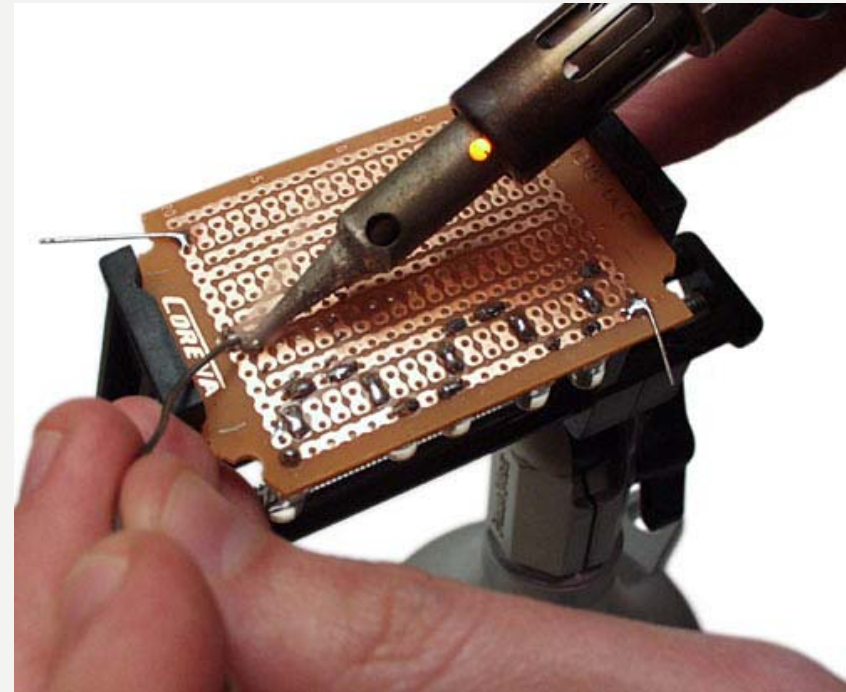
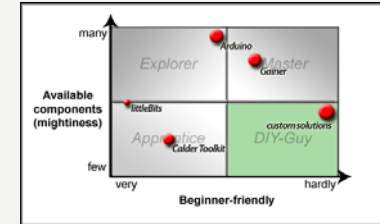
- Gainer
 - Bridge modules
 - Programming in Max/MSP, Flash and Processing
 - Mainly JAPANESE community



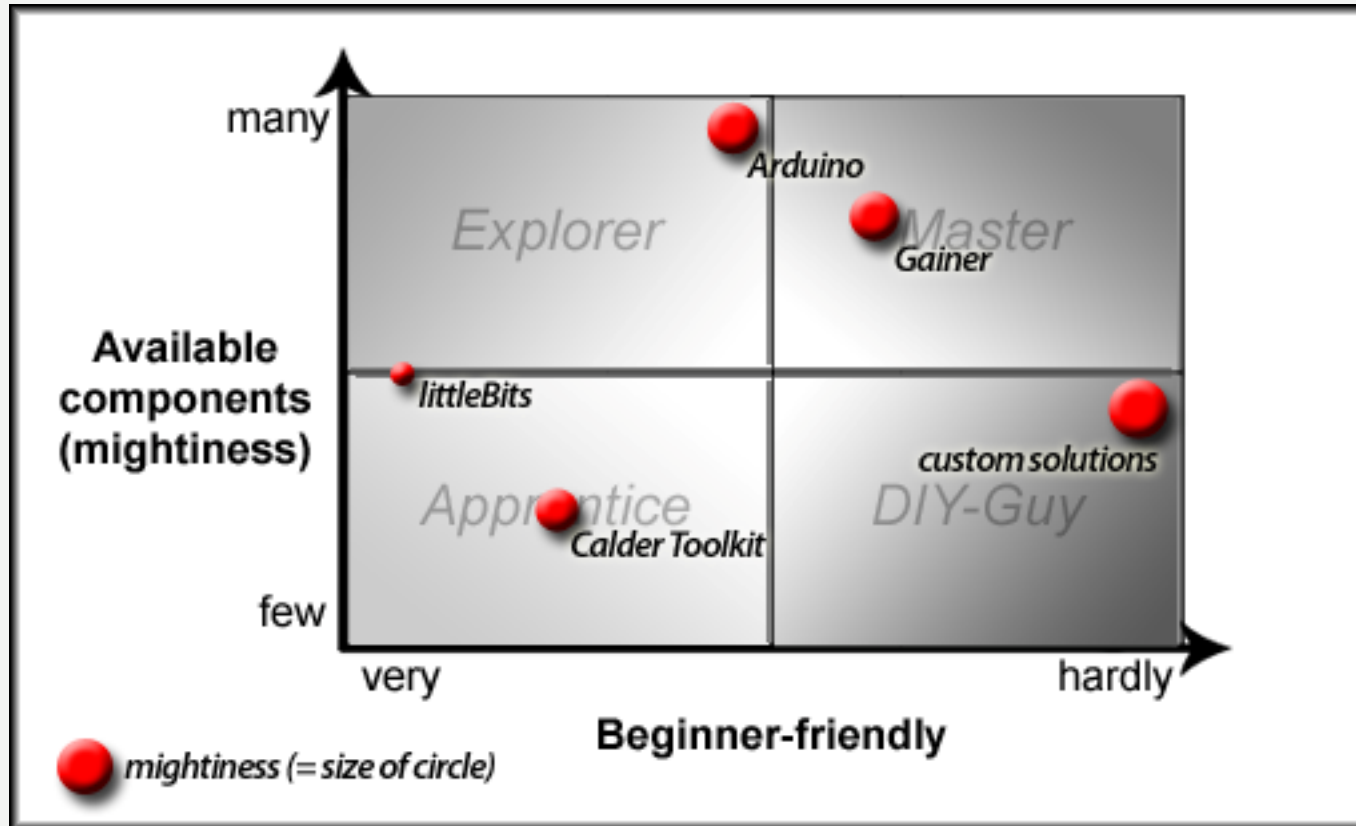
Source:
http://blog.makezine.com/archive/2008/11/_draft_open_source_hardwa.html

Example for DIY Guy profile

- Custom solutions
 - Own circuitboard design
 - Assembler programming
 - “unlimited” possibilities



Source:
<http://hackmod.com/hack/diy-awesome-soldering-stations/>



Source: own illustration



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One more thing...

- “Paper Computing”
 - Magnetic components
 - Conductive paint
 - “Interactive” paintings



Source:

Paints, Paper, and Programs: First Steps Toward the Computational Sketchbook



Round up and conclusion

- There are many toolkits available
 - Finding the right one is problematic
 - Many different toolkits with strength and weaknesses
 - Advisory matrix may help
- Prototyping is fun 😊



Discussion

Any questions or feedback?

