Accessible Making:

Designing and Building Musical Instruments in Mixed Ability Groups

Alex Lucas & Dr Koichi Samuels
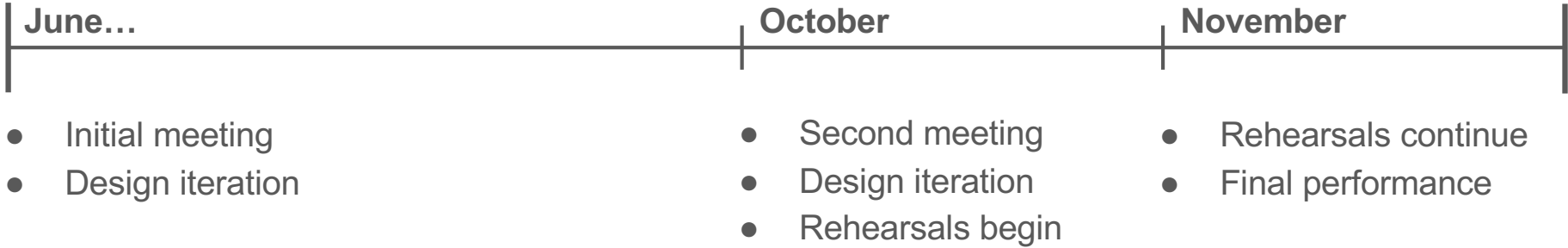Performance Without Barriers

Overview

- Bespoke Assistive Music Technology (AMT)
- Obsolescence
- Future Research
  - Our Goal: To Discover How To Support the Sustained Use of Bespoke Assistive Music Technology

Bespoke AMT: Sonorities Timeline

← 6 months →

June…	October	November

June…
- Initial meeting
- Design iteration

October
- Second meeting
- Design iteration
- Rehearsals begin

November
- Rehearsals continue
- Final performance

Total Duration: 2 weeks approximately

Bespoke AMT: Sonorities Interfaces

- Musician: Hannah
- Designer: Ben
- Device: Joystick Pitch Controller

- Musician: Robyn
- Designer: Joe
- Device: Synthesiser Control Surface

- Musician: Meabh
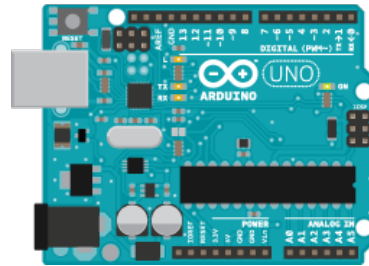- Designer: Brendan
- Device: Bead Sound Generator

Bespoke AMT: Sonorities Technologies Utilised

Bespoke Assistive Music Technology: A Common Formula

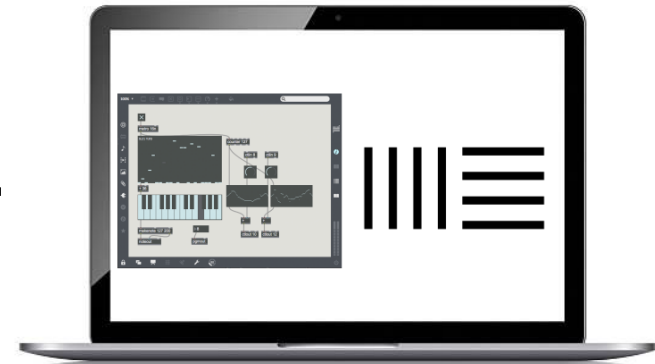Sensor   +   Microcontroller   +   Software application
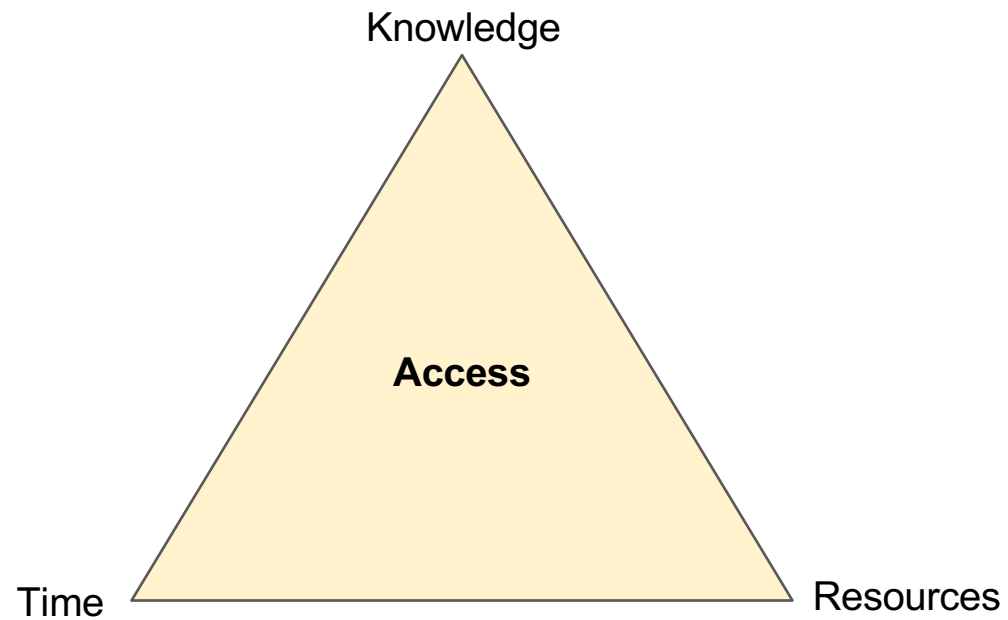
                                                                              +   Computer

Bespoke AMT: Dependencies

The Dependency Model of Music Access

Obsolescence...

is a problem for Bespoke AMT and...

Assistive Technology

- Mobility Aids
- Prosthetics
- Communication Aids
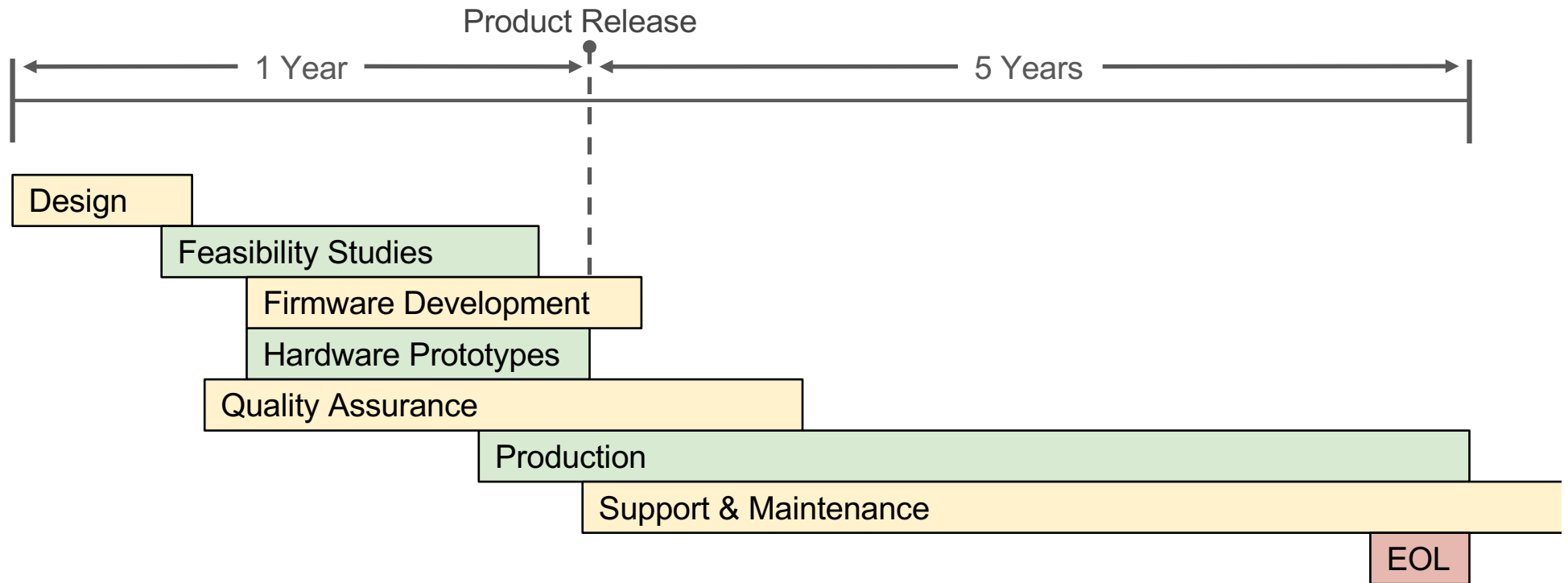- Computer Access Aids

What Causes the Obsolescence of AT?

- *"A change in the needs of the user".*
  (Phillips & Zhao, 1993)

New Digital Musical Instruments

- *"It is common for new DMI's to be set aside after only a few performances".*
  (Morreale & McPherson, 2017)

Non ready **47.1%**
Ready **52.9%**

A few hours **31.5%**
A few weeks **21.0%**
More **21.0%**
It no longer exists **15.7%**
A few days **10.5%**

Obsolescence: Commercial Product Development Lifecycle

Typically, 75% of software developers time programming is spent undertaking maintenance tasks. (Raymond, 2001)

Future Research: Supporting the Sustained Use of Bespoke Assistive Music Technology

- Create 4 bespoke assistive music technology devices with disabled musicians.
- Supported for 6 months
- Can we build a support community?
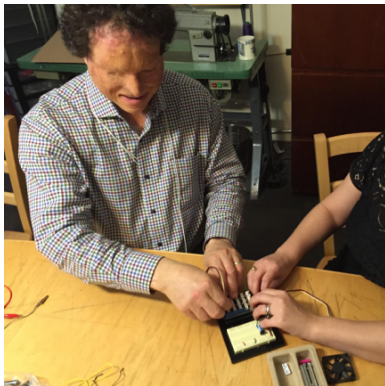

Tim

MaryLouise

Future Research: Inclusive Making of Assistive Music Technology

"Empowering users to make their own Assistive Technology can improve the adoption process." (Hurst, Tobias, 2011)
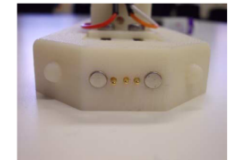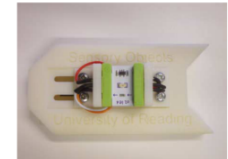

Boccia Ball Holder (Meissner, Vines et al., 2017)

Future Research: Inclusive Making of Assistive Music Technology

Blind Arduino Users Group San Francisco

Dr Joshua Miele Using Arduino. Photo Credit Holly Cohen

littleBits Modified

Photo Credit: N. Hollinworth, F. Hwang, K. Allen et al. 2014

Future Research: Fail Fast and Learn Quickly

https://www.bastl-instruments.com/instruments/omsynth/omsynthvideo3/

Future Research: Fail Fast and Learn Quickly
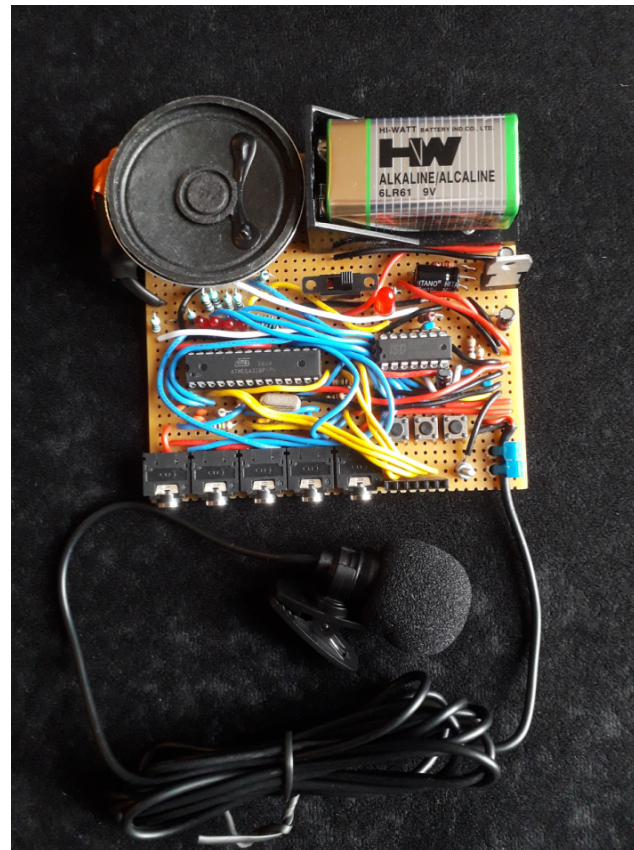
Low-Cost Sampler Prototype

Summary

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  - Our Goal: To Discover How To Support the Sustained Use of Bespoke Assistive Music Technology

Thank You For Listening

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