Raspberry Pi Hacking; Families of Children with Autism

IncludeMe project, Imagination, Lancaster University


Designing
Behaviours

The Story so Far

Theme

Other Bother

The feeling that the people around you, interacting with you or expecting things from you are just too much to bear

Name your invention!

Conversation Timer

What miracle fixes does it use?

giving time to process conversation and time to respond.

When...

in a large group or 1-1 conversation

Then...

visible timer to show speaker when to stop. Timer then shows processing time, timer then shows responding time.

Name your invention!

Pop up Personal space.

What miracle fixes does it use?

if there a too many people, an on the ge personal space to retreat to.

When...

when crowds are getting too much and you need a quiet calm space

Then...

if crowds become too much you press a button, your personal space pops up.

Inventions

Choose an existing device behaviour

- Silencer
- Traffic light
- On off button
- Attention getter
- Conversation timer
- Personal space

Develop a new device behaviour

?


BAM!

Audio-centred device

Chameleon Technology

* Dictaphone
* MP3 Player
* Noise canceller
* Hearing aid
* Alarm clock
* Kitchen timer
* Time travel recording
* Remote control
* Traffic light

Wearable Affordances

Audio In (recording, speech, ambient noise)

Audio Out (playback, amplification, cancelling)

- headphone jack

Lights

Buttons

Wireless connectivity (to other devices)

Vibration

Sensors

Logic

Device Technology

Raspberry Pi

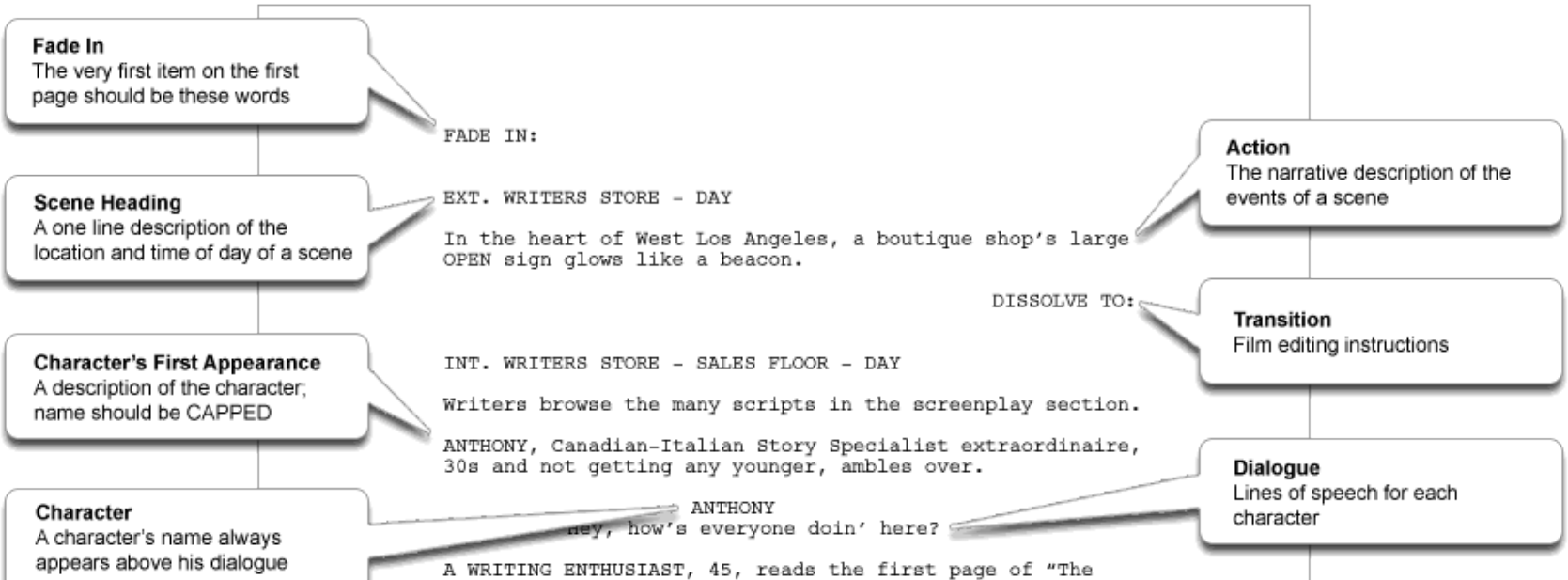
- low-power
- media-oriented (audio manipulation)
- file-oriented
- general purpose IO (sensors, buttons, lights)
- easy to code

Bluetooth

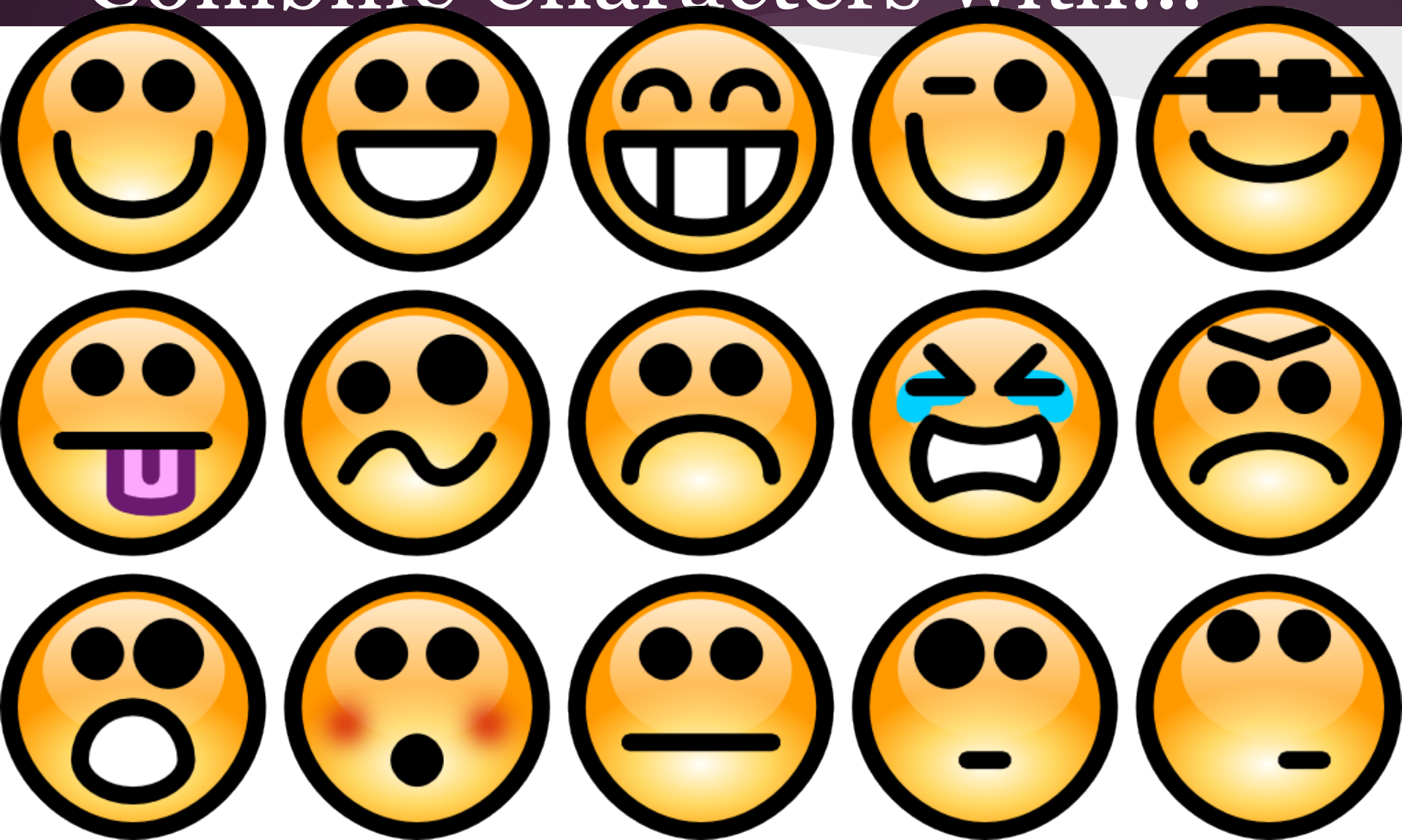
- local wireless communication

Elicitation: Screenplays

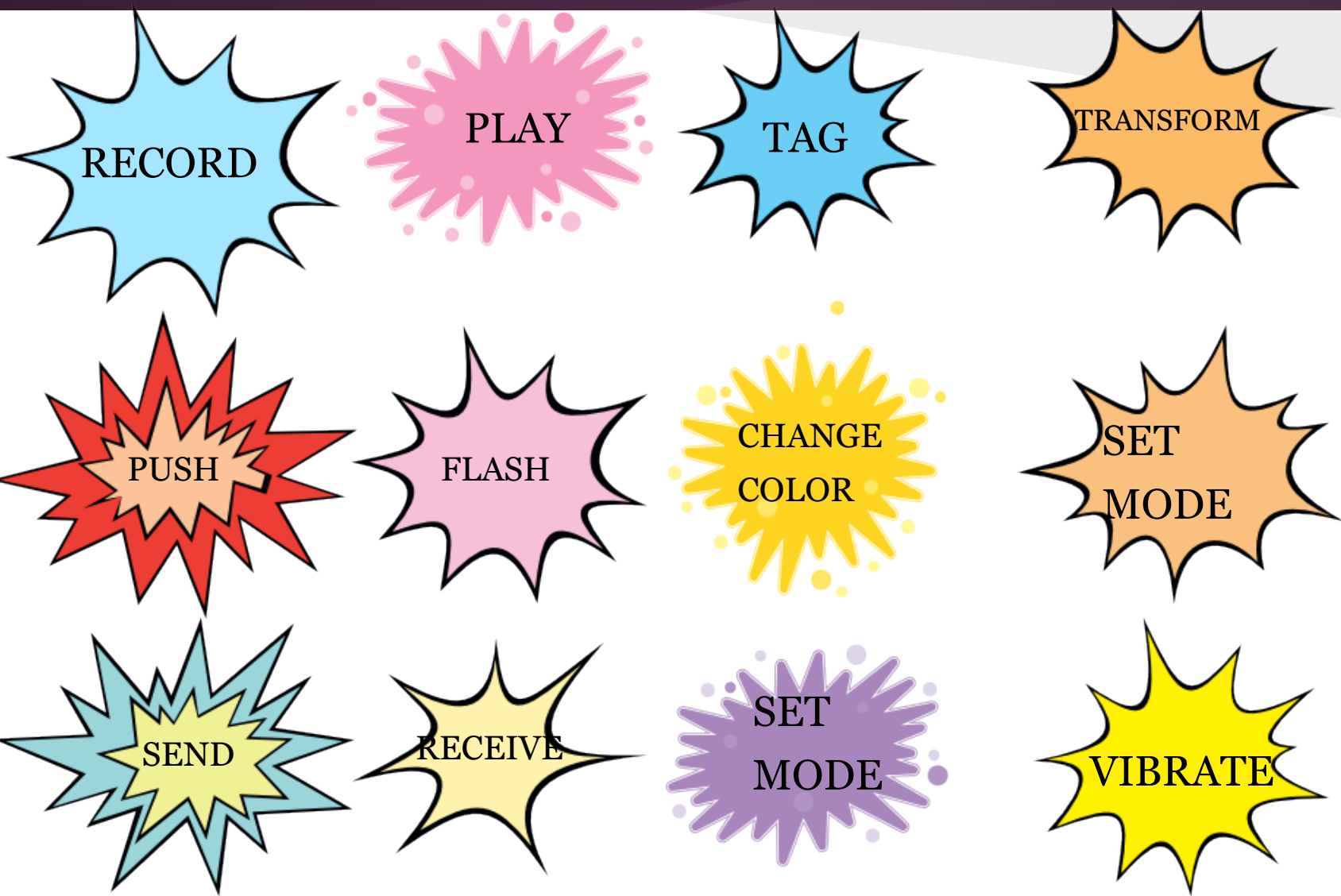
We put together screenplays, got into the prop department and encountered some paper storyboarding materials.



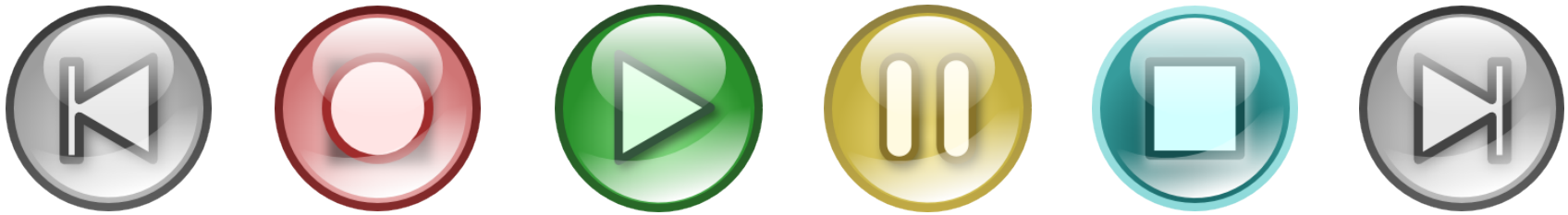
Storyboards:
Combine Characters with…



Events:
Moments in Time

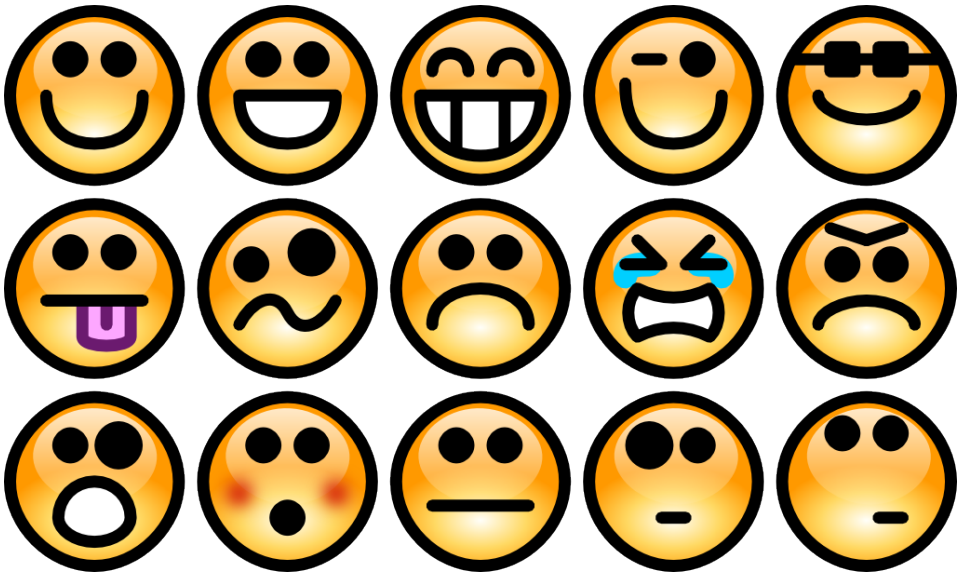


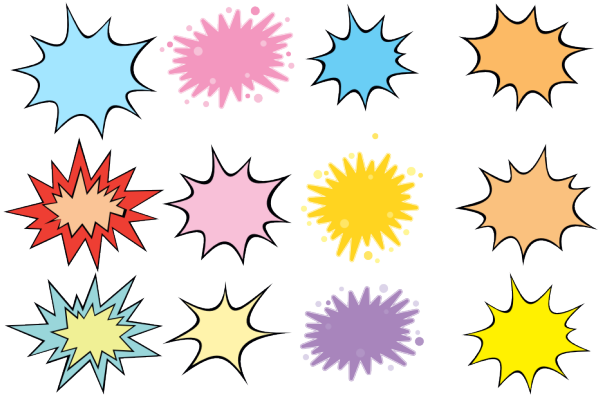
Affordances:
The Devices POV



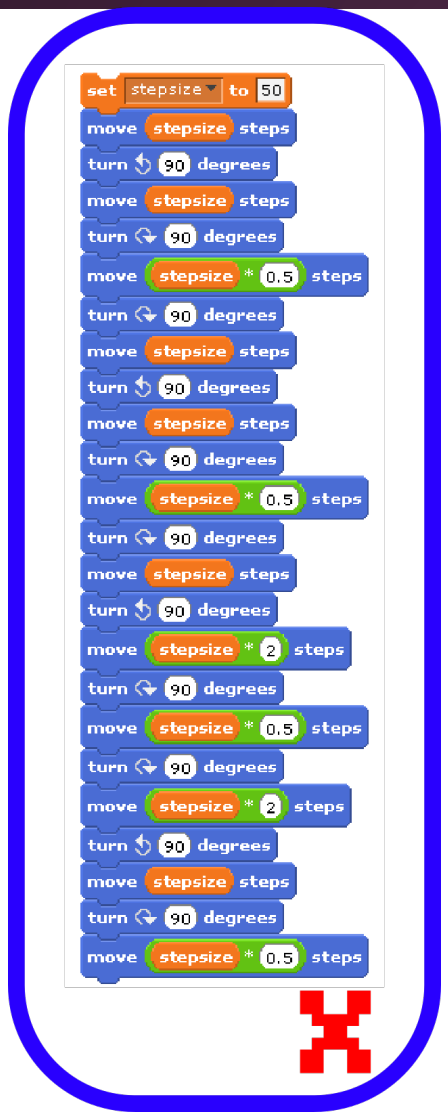
Elicitation: Storyboards

- Identify characters, device elements
- Add corresponding titles to Rows
- Construct ‘sequences’ within rows





Quiz


set stepsize to 50
move stepsize steps
turn 90 degrees
move stepsize steps
turn 90 degrees
move stepsize * 0.5 steps
turn 90 degrees
move stepsize steps
turn 90 degrees
move stepsize steps
turn 90 degrees
move stepsize * 0.5 steps
turn 90 degrees
move stepsize steps
turn 90 degrees
move stepsize * 2 steps
turn 90 degrees
move stepsize * 0.5 steps
turn 90 degrees
move stepsize * 2 steps
turn 90 degrees
move stepsize steps
turn 90 degrees
move stepsize * 0.5 steps


2
C
1
4
A
B
5
D
3
6
F
E

Elicitation

- No right way
- Purpose is to
  - represent choices
  - communicate to/constrain ‘downstream’ engineer


ZAP!