

SYNTHESIZE ME!

Exploring technology for use in Learning Disabled music projects

Teachers Technology Guide

Written by Sam Dook / Anna Dolphin 2018 / Clare Johnston

Introduction

Synthesize Me! Is a project devised by Carousel for the Carousel House Band, a band consisting of learning disabled musicians and music facilitators.

The outcomes of the project:

- Recording of an original piece of music by the Carousel House Band
- Collaboration with a local non learning disabled music professional (Lara Rix-Martin)
- A performance to an audience at a public music event
- Each band members completing project work for a Bronze Arts Award
- Two workshops for Learning disabled students in a SEN school setting resulting in the creation of an original piece of music and exploration of current music technology
- Trialling new software in development for Ableton / Ableton push
- Reporting by music facilitators on the research and development of this project on the youth music network forum <http://network.youthmusic.org.uk/users/sam-dook>
- Endorsement by local music instrument company Dubreq, makers of the Stylophone pocket synthesizer
- The creation of a teachers technology guide

The concept of this project is to explore technology themed around celebrating the work and techniques of the pioneering British electronic musicians Daphne Oram and Delia Derbyshire. Daphne Oram (1925-2003) was a composer, musician and pioneer of electronic music. She co founded the BBC Radiophonic workshop in 1958. One of Daphne's interests was the relationship between drawing, mark making and its relationship to sound generation. She spent years exploring this topic and invented a machine called the Oramics machine. Some of the apps detailed below have been included in this study because they relate to this concept.

Delia Derbyshire (1937-2001) was another pioneering electronic musician, composer and sound designer. She also worked at the BBC Radiophonic workshop. Amongst other techniques she used tape machines to sample sounds from unconventional sources and manipulate the results to create original soundscapes. We used this idea as part of our project. Musicians from the Carousel House Band

explored sampling sounds and manipulating the sounds within music software such as Ableton.

Delia Derbyshire is well known for arranging and recording the Ron Grainer theme music for the popular television series Doctor Who.

As part of our work we also looked at utilising music apps and hardware controllers. This guide is designed for music teaching staff based at SEN schools where we have delivered Synthesize me! workshops

IOS Apps guide

The following is a brief description / purchase details for music apps we have used on IOS Apple Ipads as part of our project research. The same APPS maybe available for Android devices but we have not researched their availability

Apps are developed by a variety of developers. Please note not all Apps have been updated to work on the most recent IOS. Please access the App store for more info.

Aeolian Harp



By Uwe Oestermeier

Touches and strokes generate visualizations and sounds which evolve over time.

<https://itunes.apple.com/gb/app/aeolian-harp/id374133120?mt=8>

Cost: £1.99

AUMI



Uses the camera as an input "enables the user to play sounds and musical phrases through movement and gestures. This is an entry to improvisation rather than "hitting the right notes" or playing set pieces of music."

<http://deeplisting.org/site/content/aumipadhome>

Cost: Free

AUFX:Dub

By Kymatica AB



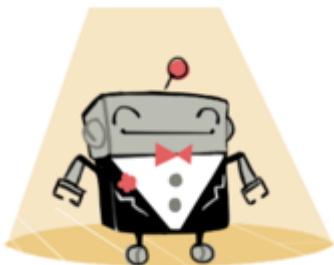
Delay effect, great for voice changing effects, and very long delays for live soundscapes. Use with external mic and speaker or headphones. Be careful of feedback.

<https://itunes.apple.com/gb/app/aufx-dub/id678982701?mt=8>

Cost: £4.99

Bebot Air

By: Normalware



Fun synthesized animated robot. "4-finger multi-touch polyphony, multiple synthesis modes, user-definable presets and scales, tweakable synth settings and effects"

<http://normalware.com/>

Cost: £1.99

Bloom

By Opal Limited



Developed by Brian Eno and Peter Chilvers. Melodic coloured circles repeat and layer from tapping phrases on the screen

<https://itunes.apple.com/gb/app/bloom/id292792586?mt=8>

Cost: £3.99

Air

By Sandra O'Neill & Peter Chilvers. (Based on concepts by Brian Eno)



Air assembles vocal and piano samples into a beautiful, still and ever changing composition, which is always familiar, but never the same. (Description from generativemusic.com)

Cost:

Trope

By Opal Limited



Another app from Brian Eno / Peter Chilvers. Expands further on the ideas introduced by Bloom. Darker in tone, Trope immerses users in endlessly evolving soundscapes created by tracing abstract shapes onto the screen, varying the tone with each movement.

(Description from generativemusic.com)

cost: £3.99

Color Band

By Ting-Wei Liu



Draw with sound then play by touching or movement from camera

<https://itunes.apple.com/us/app/color-band/id642764991>

Cost: Free

iKaossilator

By KORG INC



XY interface. Colourful, synths and beats.

<https://itunes.apple.com/gb/app/korg-ikaossilator/id452559831?mt=8>

Cost: £9.99

Impaktor

By BeepStreet



Turns a surface into a percussion instrument

<https://itunes.apple.com/gb/app/impaktor-drum-synthesizer/id557824278?mt=8>

Cost: £4.99

Jam Synth

By Primitive Digital Software



Tracks the pitch and amplitude of an incoming signal and uses this information to control digital oscillators

https://itunes.apple.com/us/app/jam-synth/id732618765?mt=8_C

Cost: free

Orphion

By: Sebastian Trump



Configurable virtual pads that play instrument that sounds "between string instrument and percussion." Additional expression

<http://www.orphion.de/>

Cost: £4.99

Singing fingers

By: Beginner's Mind



Multicolour finger painting with sound recording. Playback and explore sound recording painting. Create drawings / simple mark making whilst sampling sounds through the internal microphone

<http://singingfingers.com>

Cost: £0.99

Tachyon

By Wizdom Music LLC



Visual interface. Blend between 2 sounds.

<https://itunes.apple.com/gb/app/tachyon/id544585980>

Cost: £1.99

Thumbjam

By Sonosaurus LLC



Over 40 high-quality real instruments multi-sampled or sample your own sounds. 100's of scales. Configure size, controls

<https://itunes.apple.com/gb/app/AUMI/id338977566?mt=8>

Cost: £8.99

Virtual ANS

By Alexander Zolotov (NightRadio)



A software simulator of the unique Russian synthesizer ANS - photoelectronic microtonal/spectral musical instrument created by Russian engineer Evgeny Murzin from 1938 to 1958. This app converts drawing and mark making into sound and although the interface is complex compared to other music apps the act of drawing and hearing the sound created is intuitive. It is also possible to utilise the audio input of an internal mic to incorporate sounds into these drawings and playback.

Cost: £5.99

Android apps

There are lots of DAWs, drum machines, looping apps, and sketchpad type apps.

These look interesting...

- EtherSurface
- Plasma Sound
- HD MorphWiz
- Soundcamp
- Walkband

Hardware

Mogees



App and vibration sensor to transform any object into a unique musical instrument.

<http://mogeess.co.uk/>

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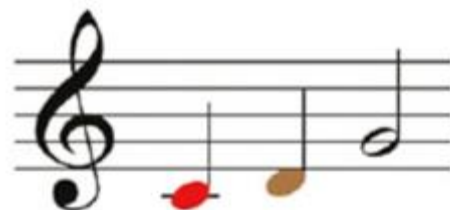
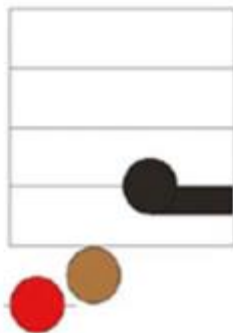
<http://www.ikmultimedia.com/products/iring/>



Mic to Ipad options

- - USB mic with camera connection kit (may need powered usb hub)
- - Ipad compatible audio interfaces
- - IK Multimedia iRig Pre -
<http://www.ikmultimedia.com/products/irigpre/>
- - CableJive ProJive XLR cable –
<http://cablejive.com/projive-xlr/>
- - Rode SC4 3.5mm TRS to TRRS adaptor (mics with 3.5mm output)
<http://www.ode.com/accessories/sc4>

Combining new technology and figurenotes



Figurenotes is a musical notation system / teaching aid devised in Finland by teachers from Resonaari SEN music school and developed/distributed by Drake Music Scotland.

<https://www.figurenotes.org>

We have been using figurenotes in our work with learning disabled musicians for several years and found it to be a very useful and adaptable system

Physical resources such as stickers for instruments and flashcards, dice really help implement the system. To add to this there are ways you can combine new technology with figurenotes.

The music app Thumbjam can be modified to use figurenotes.

The instructions included in this guide were devised by Clare Johnston

<http://drakemusicscotland.org/about/associate-musicians/clare-johnston/>

More info can be found here:

<https://www.figurenotes.org/thumbjam-with-figurenotes/>

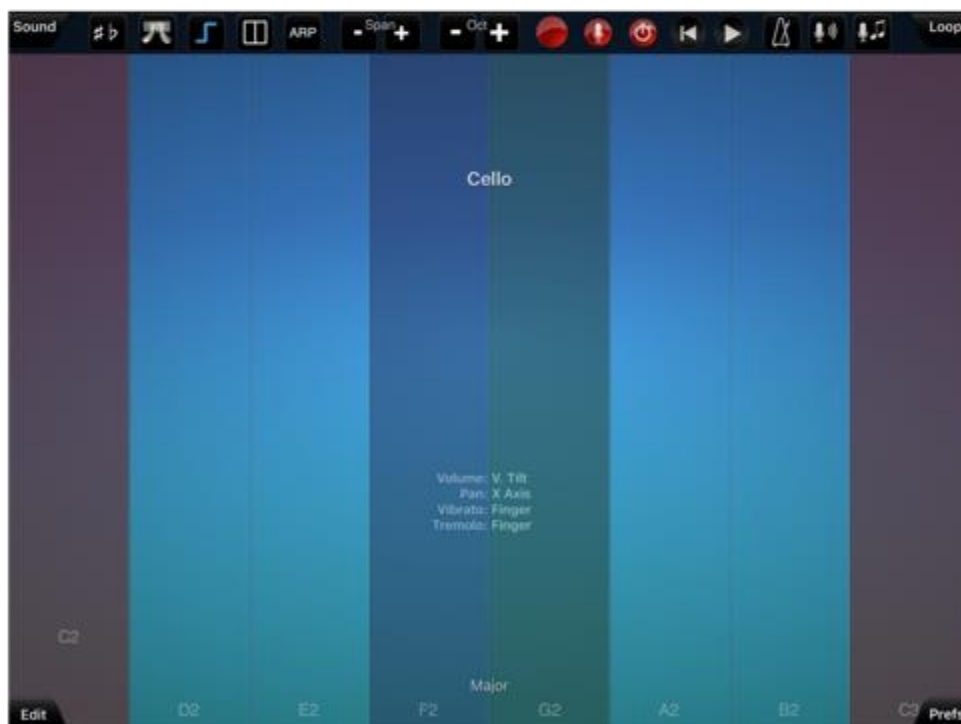
Figurenotes on Thumbjam

An underlay can be placed on Thumbjam to indicate the location of notes in Figurenotes like this:

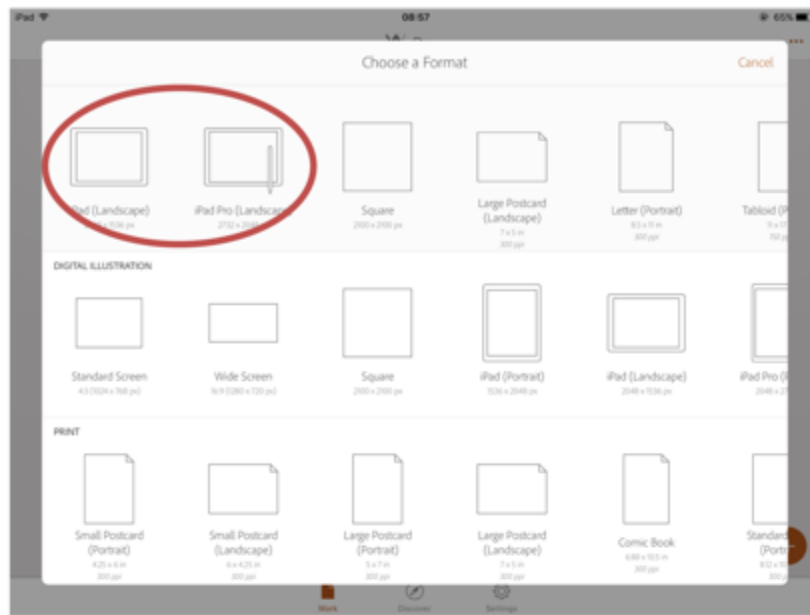


You will need a graphics editor capable of layers and transparency. Vector graphics such as Inkscape or Adobe Draw are preferred for a cleaner result, but you can also use bitmap editors such as Photoshop, Photoshop Express, Adobe Photoshop Sketch and so on. This tutorial shows Adobe Draw on the iPad because it is free and doesn't require access to an additional PC or Mac.

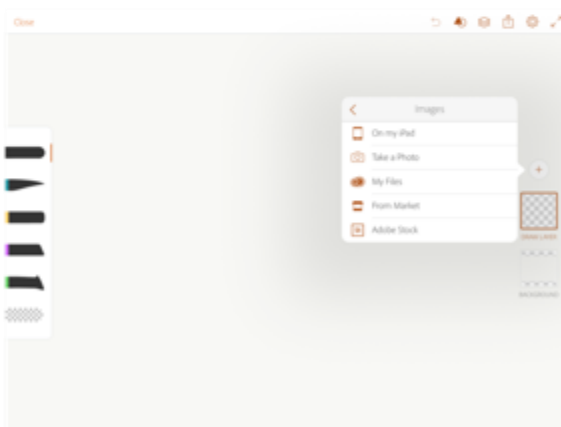
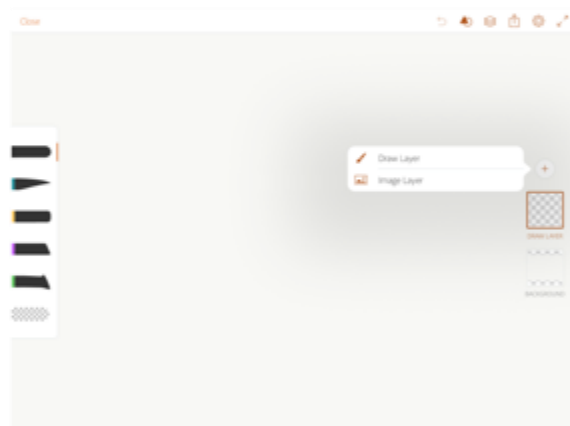
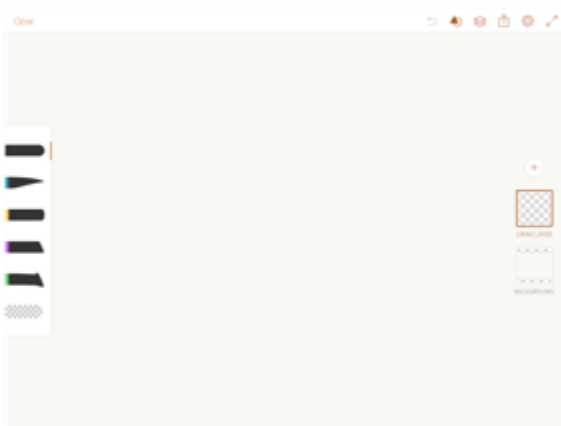
1. Set up the iPad with the scale, octave and span you want to use and take a screenshot by pressing the Home button and the on/off button at the same time.



2. Now you need to load up Adobe Draw and press the **+** button for a new project. Choose either iPad (Landscape) or iPad Pro (Landscape) depending on the model you are using.

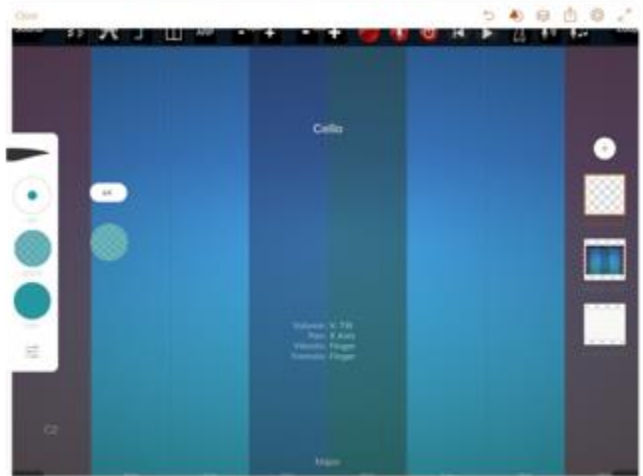
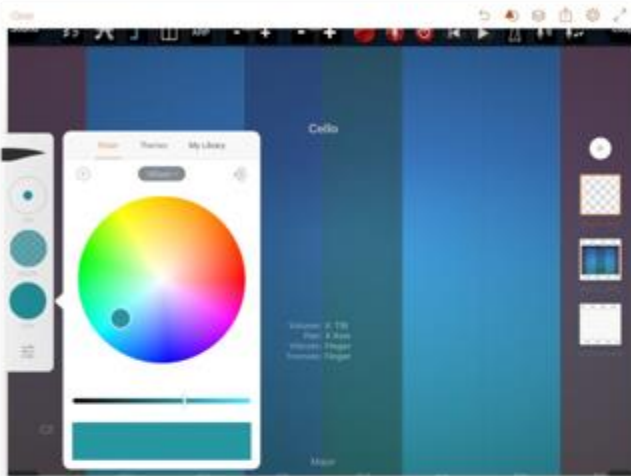


3. Press on the New layer button and then select Image Layer

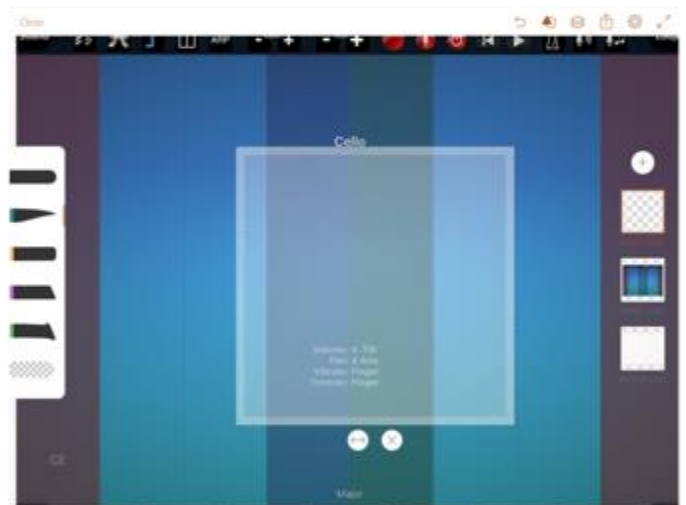
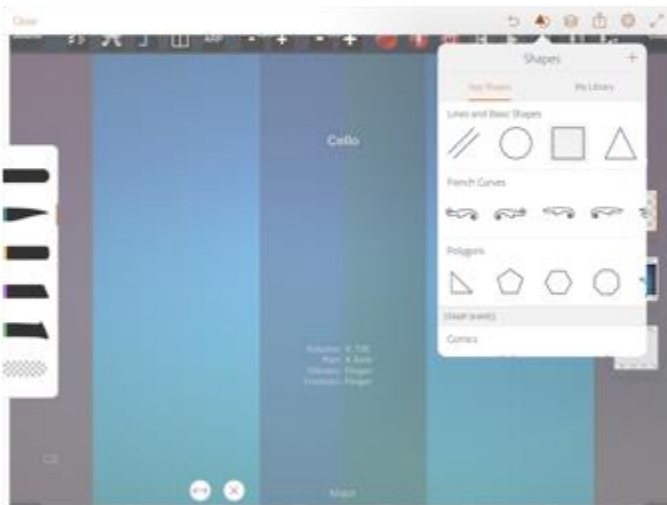


Locate the screenshot you just took in your iPad albums. Drag the corners of the image out so it fills the entire screen, including the bit underneath the top and bottom menus.

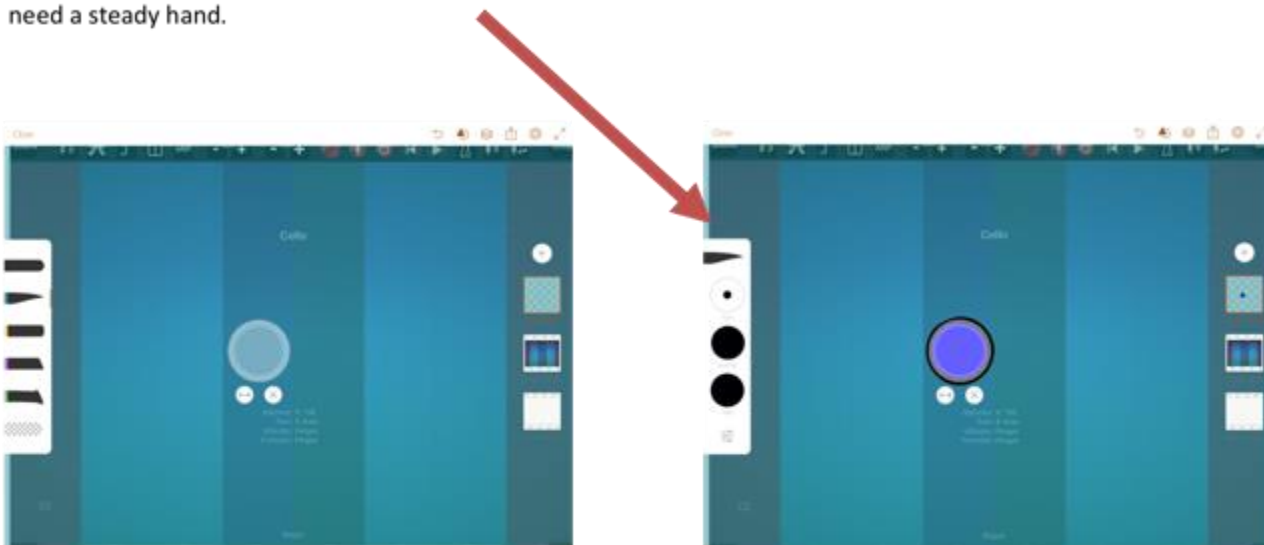
4. Use the add new layer button again and this time select Draw layer. This next step is optional but recommended if you want the result to look more familiar on your iPad. If you don't do this, the screen will not have the familiar blue colouring. Tap on any of the "brushes" down the left side of the screen, then tap it again and you should get this options menu. Tap on colour and tap on a blue area. Drag the bottom slider to the colour you want. Tap Colour again to close the colour wheel. Next, press and hold Opacity, then drag downwards on the screen to decrease the opacity to around 50%.



5. Next tap on the menu with a circle and a triangle in it and select the square. Pinch zoom and drag the square until it fills the entire screen. Next, press and hold near the middle of the screen. This should fill the screen with a slight blue overlay that you can still see through. Tap the little x

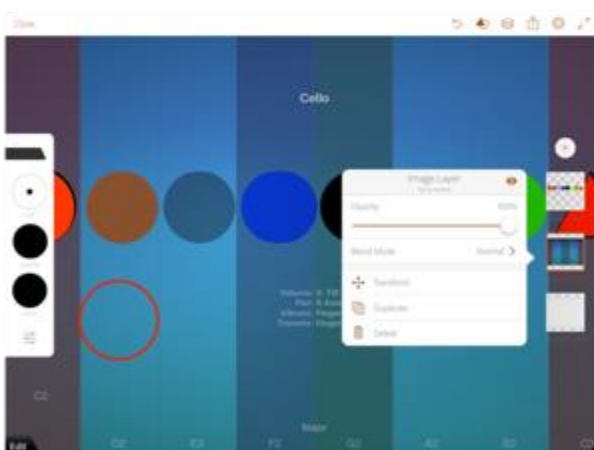


6. Now you are going to add the Figurenotes shapes. This uses the same menu again. You can access circles, triangles and diamonds. Select the figurenotes shape appropriate to the octave you are using. Pinch zoom it to the correct size and then drag it onto the "bar" it needs to be on. Select the colour as you did before, and set the opacity this time to 100. Press and hold inside the circle and it will become coloured. The shapes look clearer with a black outline. To achieve this, tap the fine pointed pen, set the colour to black and draw around the outside of the shape. The shape guide will make sure this is a good line, you don't need a steady hand.



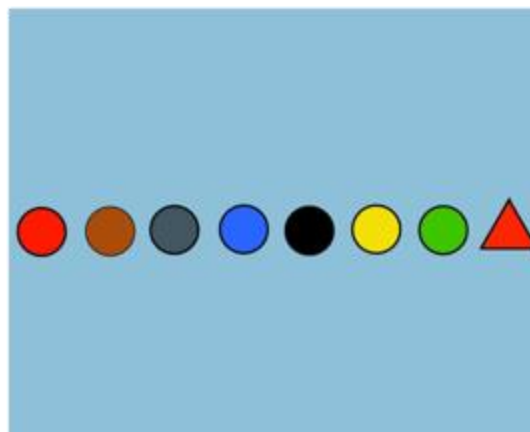
If you need some more of the same shape, do not click the x button, go back to the shape menu and press the circle again. This will put a new circle of the exact same size over the top of the one you can see. Drag this to where you want it and repeat the steps. If you are finished working with this shape, press x. To create sharps and flats you need to use a triangle shape over the edge of the original shape to create an arrow effect. There are ways to import custom shapes into various software programs so you can use Figurenotes Jpeg shapes if you wish to use more complex scales and notes represented by crosses, but that is outside the scope of this simple tutorial.

7. When you have completed the notes you want, you will remove the original image. Double tap on the layer picture which shows the original screenshot. (Please excuse the random red circle on my version!) From the menu options, press delete.



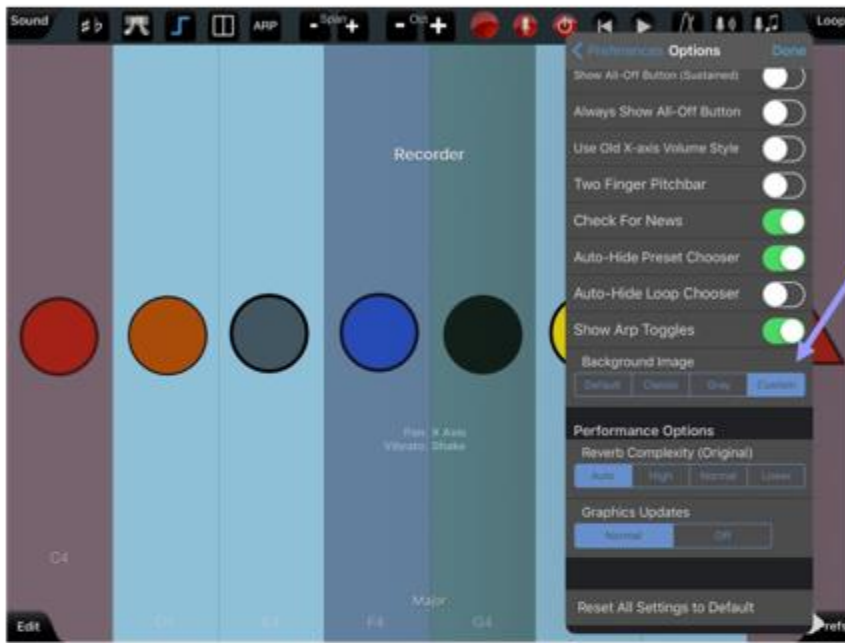
This should leave you with something like this:

There is no special need to put the Figurenotes in the middle of the screen, you can place them anywhere!



8. Just before we import the photo into Thumbjam, open it in your Photo app and just double check it fills the whole screen properly. If it's not the right size, drag it to a full screen size.

9. Now for the really easy bit! Open Thumbjam, click the Prefs menu, Options, scroll down to Background Image and press Custom. Find the image you have created and press it. You should now have Figurenotes on your iPad screen.



10. You will find that the Figurenotes vanish when you press the notes, this is normal because we have added an underlay and overlay, so players might need some time to get used to this. They will reappear as soon as you release the note.



Using figurenotes with Ableton / Ableton push

Ableton is my preferred DAW for project work with learning disabled musicians. Its unique design allows fast sample editing, sound manipulation and looping function. When working with Learning disabled musicians these can be really useful software design features enabling a fast pace workflow. Ableton can also be linked to hardware controllers such as the Ableton Push which have backlit dynamic control pads.

Musician and programmer Sam Halligan has been developing a software patch to enable the configuration of figurenotes colours on the Push control pads. This software is still being developed but has been made available to the public here:

Fingerspushbuttons.com

Please not: the software is currently compatible with Ableton suite (max for live) and Ableton Push 1.

We have found the patch to be very useful for our project work. There are a variety of ways the control surface can be configured to accommodate musicians of different abilities.



2 x 2 pad mode



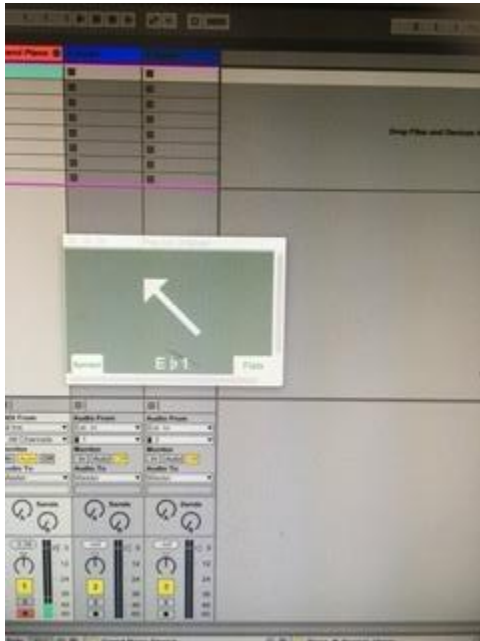
4 x 4 pad mode



Scale mode with out of key notes muted



Scale mode excluding out of key notes



The figurenotes pop up window, which can be accessed within Ableton

Amongst other available software patches being developed by Sam Halligan:

Push locker

Like guided access on an Ipad this patch enables you to lock certain functions on the push controller, which can be very useful, when you want to make the controller more adaptable to a classroom setting

Pop up piano

A great companion piece for a midi instrument track within Ableton. The piano displays the note names being played and aids the musician to construct music utilising conventional note names

Findings and Conclusions

It has been a very informative project for the music facilitators and learning disabled musicians. The technology we have trialled has been well received by the learning disabled musicians. I believe it is important to embed current technologies in project work. Many Apps and software packages offer an inclusive experience to learning disabled artists enriching their musical experiences and providing new and exciting challenge and possibilities

Here are some quotes from The Carousel House Band members and students from St Johns College:

On the music App 'Musyc':

'I think its great fun to use, so many sounds that you can hear and so many different shapes as well you can use'

'I think its fun to play with the tablet and also to try and make different sounds'

'I like the music app its fun to play with, its easy peasy!'

'Musyc app with trumpet sound, I like the modern jazz sound'

On the music App 'Bloom':

'It's a good app to use, I like to look at the colours. It makes me feel happy'

'The mood of this app is kind of dreamy. When you press it, little circles with colours come out and it makes different rhythms, so it's really nice'

'It sounds like a rainbow!'

On delivering workshops in an SEN school:

'We are going to St Johns College to share our music skills. I'm making everybody proud like my parents' Elliott

'This activity is very new to me because I haven't done it before but we've been working together to make different rhythms for this project. We have worked hard and now we are teaching music getting everyone involved' Laura

'I'm excited, I can show the students how to play the instruments well'
Bethan

'It makes me feel happy' Ollie



Students at St Johns College experimenting with sounds

Feedback from students from St Johns College participating in the music workshops led by the carousel house band:

'My favourite was the drums and the Theremin'

'I enjoyed recording, my favourite is the keyboard'

'I did really enjoy doing some crazy moves playing with the Theremin'

'I was listening and focused on the music'

To ask any questions or find out more about Synthesize Me! Please contact Sam Dook / Carousel:

sam.dook@carousel.org.uk

<http://www.carousel.org.uk>