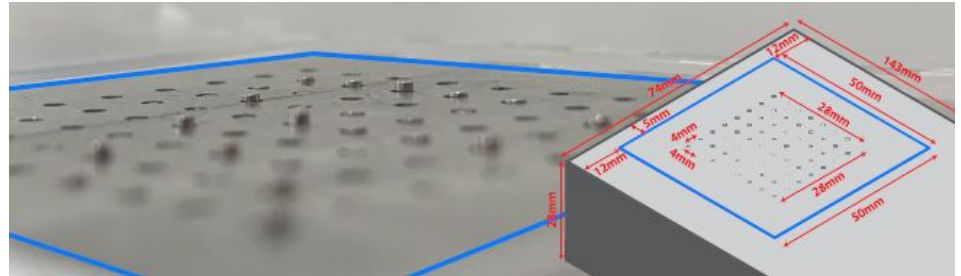
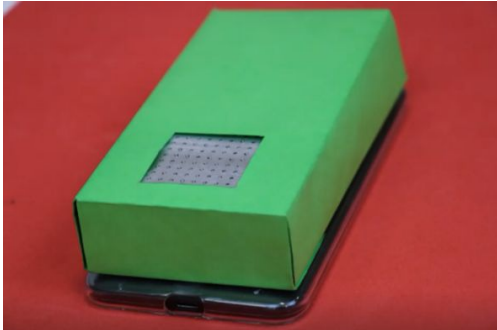


# Tactile Feedback User Manual

Benjamin Sampson 914545

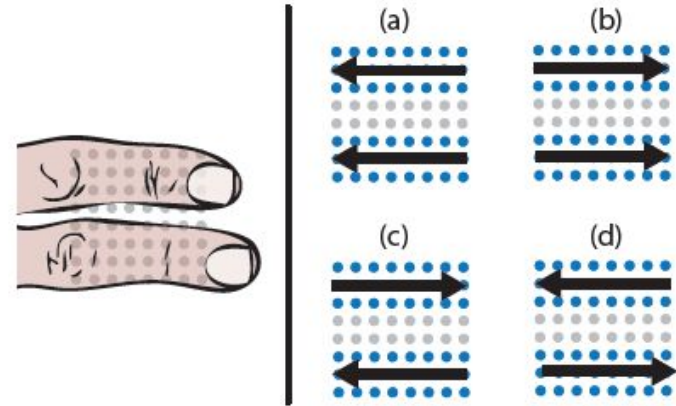
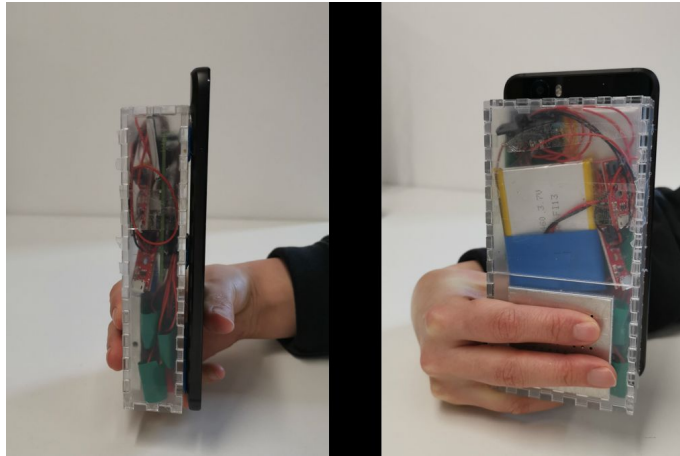


# What is in this User Manual?

- How the hardware works
  - What is it for?
- How the application works
  - What is it for?
- Navigating around
- Making a Frame
  - Viewing a Frame
  - Exporting a Frame
  - Loading / Editing a Frame
- Making a Sequence
  - Viewing the Sequence
  - Exporting the Sequence

**How the hardware works:** Tactile feedback grid that can be mounted on the back of a mobile device. This provides the device with the ability of spatio-temporal direction information.

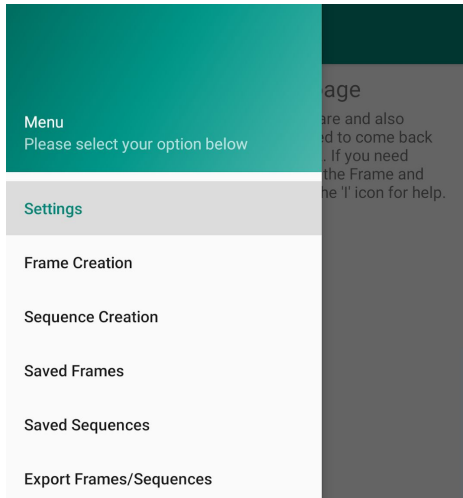
**What is it for?** Tactile feedback generated from the mobile device, by bluetooth connection, is felt on the finger pad during interaction. This provides you with both directional and patterned stimuli to facilitate a variety of uses on the back of a device.



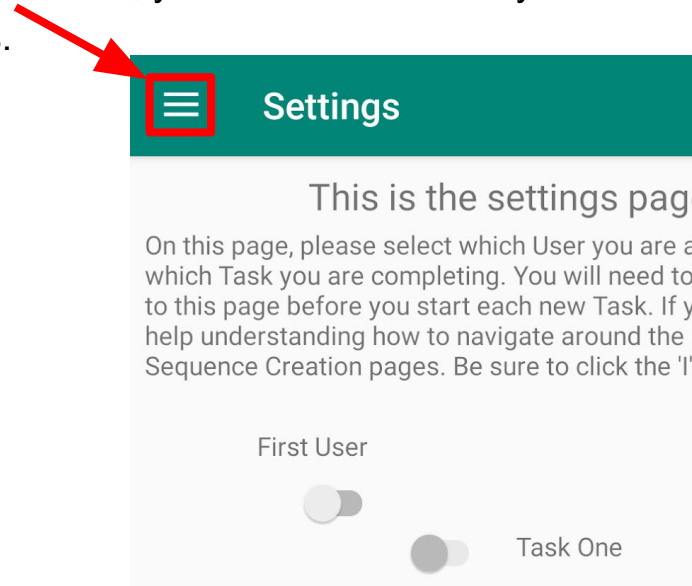
**How the application works:** The application works by creating a platform where you have the ability to generate code, that can be used in unison with the Tactile Feedback hardware device.

**What is it for?** It gives you the ability to create custom directional or patterned stimuli, which can be viewed, edited and exported for use on with the hardware device.

**Navigation around the application:** By clicking the 3 lines icon, you will have the ability to view the Menu of the application, and click on several different areas.

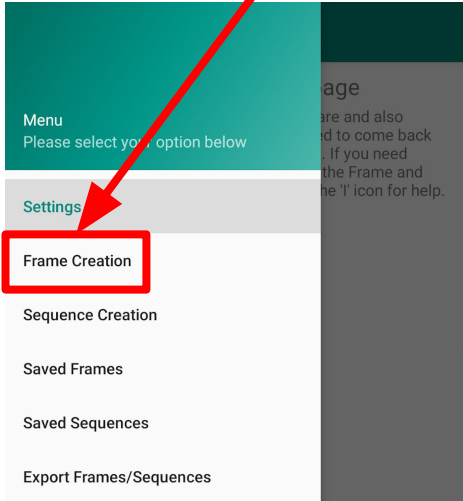


Use this area to switch  
between application  
screens depending on  
your desired use.

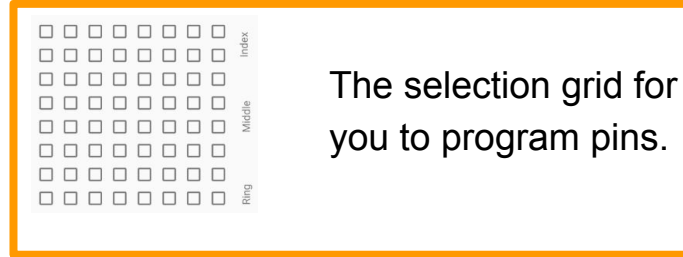


# Making a Frame

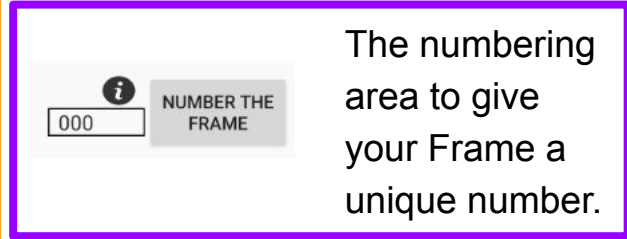
To Create a Frame,  
click “Frame Creation”  
to get started.



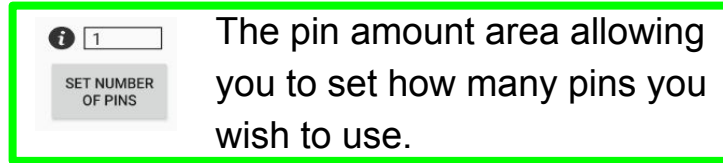
You will be presented with everything you need to  
Create a Frame. On this page you will find:



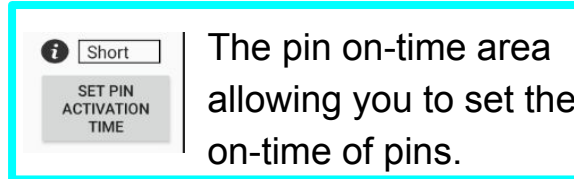
The selection grid for  
you to program pins.



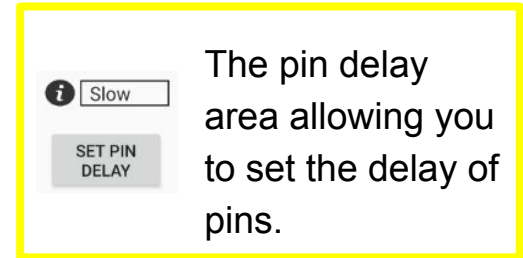
The numbering  
area to give  
your Frame a  
unique number.



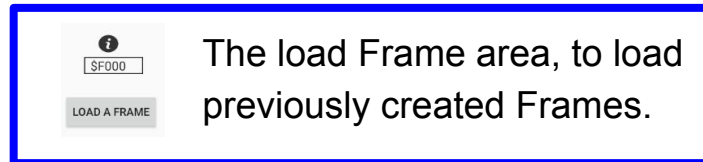
The pin amount area allowing  
you to set how many pins you  
wish to use.



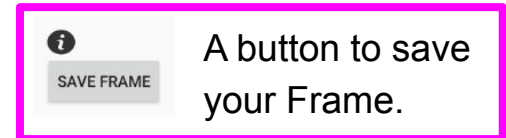
The pin on-time area  
allowing you to set the  
on-time of pins.



The pin delay  
area allowing you  
to set the delay of  
pins.



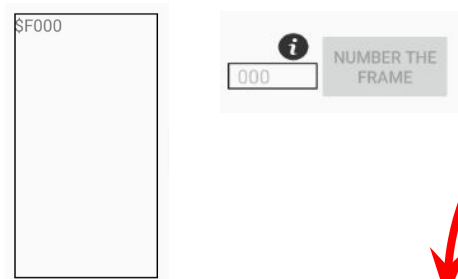
The load Frame area, to load  
previously created Frames.



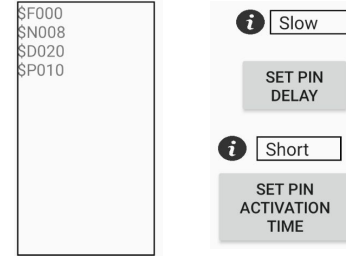
A button to save  
your Frame.

# Making a Frame - Triangle

- 1) To start, click “Number The Frame”, this should appear in the bottom left of the screen and also grey out the button.



- 3) Set the default values for “Set Pin Delay” and “Set Pin Activation Time”.



- 2) Select the amount of pins you wish to use, start with 8.



- 4) Make a Triangle pattern as shown below.

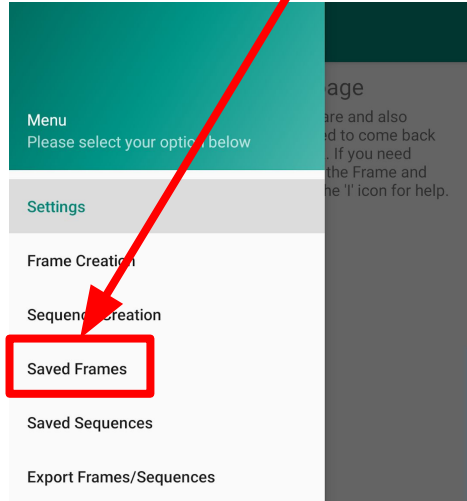


- 5) Once finished, click “Save Frame” to save your created Frame.

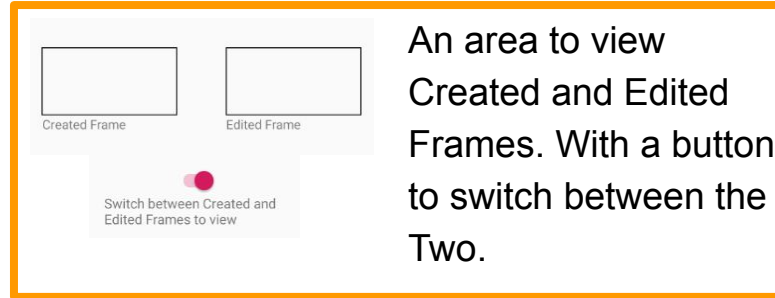


# Viewing a Frame

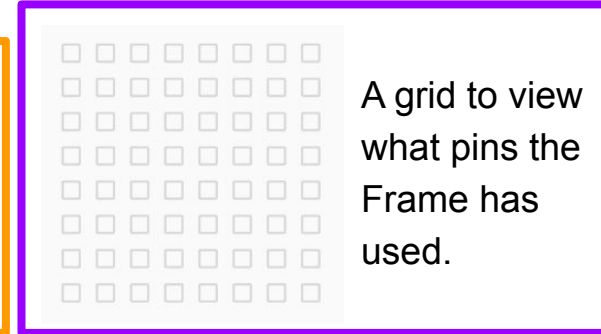
To view your Frame,  
click “Saved Frames”



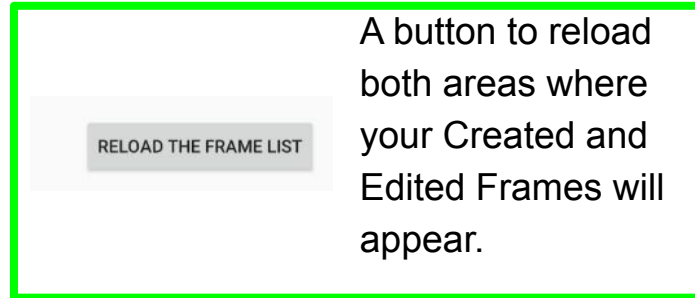
You will be presented with everything you need to view any Frames you have created. On this page you will find:



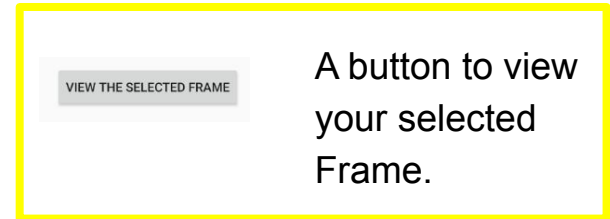
An area to view  
Created and Edited  
Frames. With a button  
to switch between the  
Two.



A grid to view  
what pins the  
Frame has  
used.



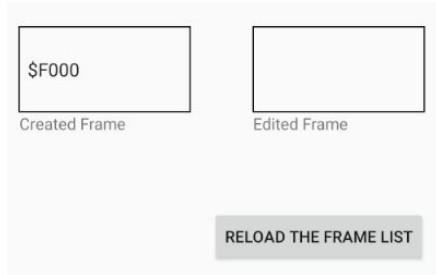
A button to reload  
both areas where  
your Created and  
Edited Frames will  
appear.



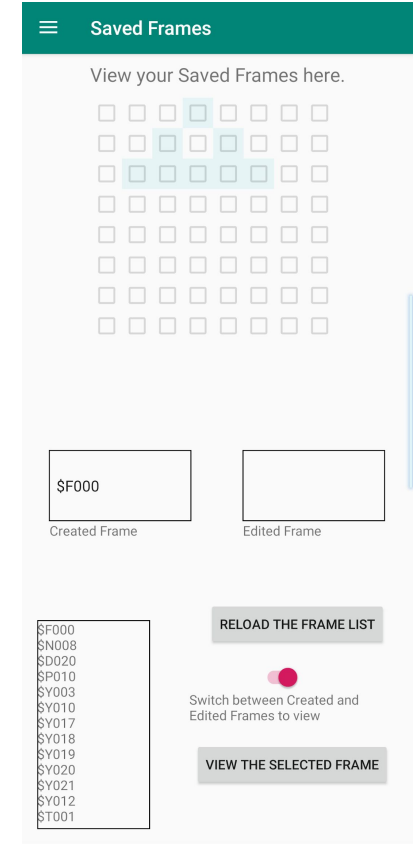
A button to view  
your selected  
Frame.

## Viewing a Frame - Triangle

- 1) To start, click “Reload The Frame List” to refresh both areas where you will be able to select your Frame.

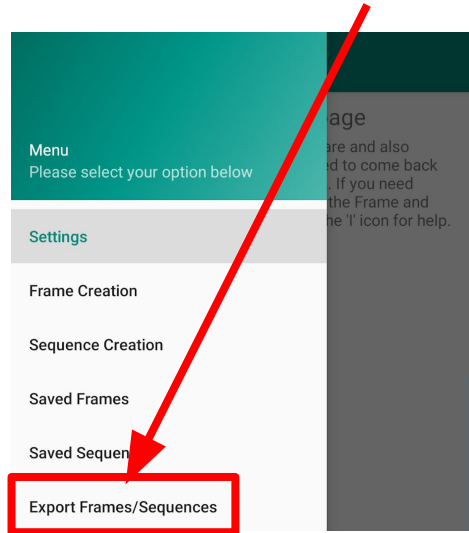


- 2) Click “View The Selected Frame” to see a graphical representation of your Frame, and view the contents.



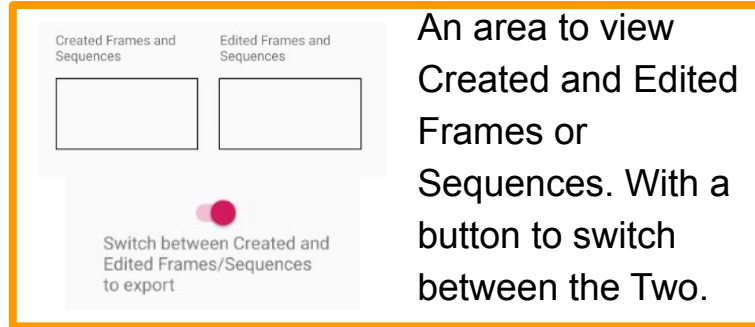


To Export your Frame or Sequence, click “Export Frame / Sequences”

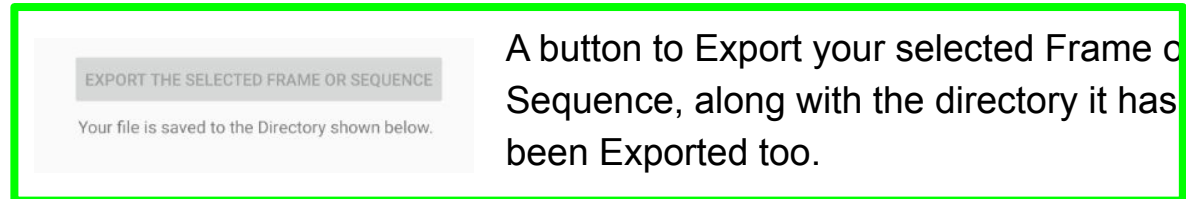


## Exporting a Frame or Sequence

You will be presented with everything you need to Export any Frames or Sequences you have created. On this page you will find:



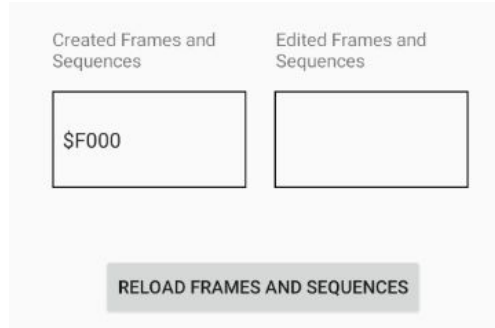
An area to view Created and Edited Frames or Sequences. With a button to switch between the Two.



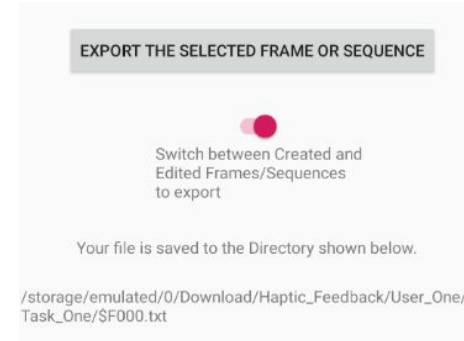
A button to Export your selected Frame or Sequence, along with the directory it has been Exported too.

## Exporting a Frame - Triangle

- 1) To start, click “Reload Frames and Sequences” to refresh both areas where you will be able to select your Frame.



- 2) Click the “Export The Selected Frame or Sequence” to Export your selected Frame. The directory it goes into, will be displayed below.



## Loading and Editing a Frame - Triangle

1) Click back to “Frame Creation” screen to get started.

2) To start, click “Load a Frame”, this should appear in the bottom left of the screen and also grey out two buttons. You will see a graphical representation of the loaded Frame.



Frame Creation

You can create a Frame here

Pins Used: 0/0

NUMBER THE FRAME: 000

SET NUMBER OF PINS: 1

SET PIN DELAY: Slow

SET PIN ACTIVATION TIME: Short

SAVE FRAME

LOAD A FRAME

Pins: SF000, SN008, SD020, SP010, SY003, SY010, SY017, SY018, SY019, SY020, SY021, SY012, ST001

3) Reselect the number of pins, and change the pin delay and activation time. Then re-draw a triangle elsewhere on the screen. Once finished, click “Save Frame”

Frame Creation

You can create a Frame here

Pins Used: 8/8

NUMBER THE FRAME: 000

SET NUMBER OF PINS: 8

SET PIN DELAY: Medium

SET PIN ACTIVATION TIME: Long

SAVE FRAME

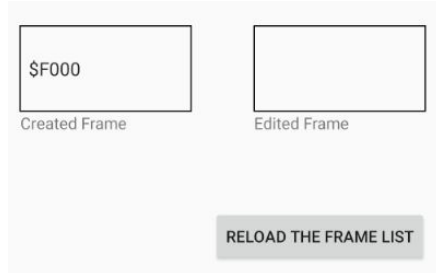
LOAD A FRAME

Pins: SF000, SN008, SD040, SP030, SY037, SY044, SY051, SY052, SY053, SY054, SY055, SY046

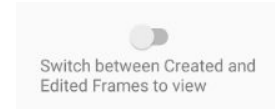
## Viewing Edited Frame - Triangle

1) Click back to “Saved Frames” screen to get started.

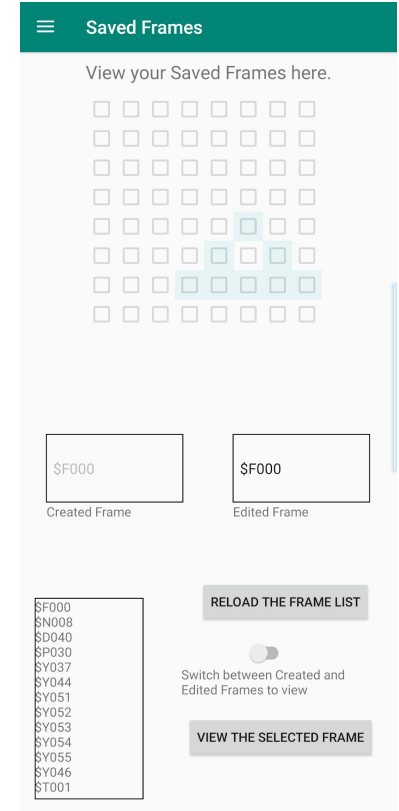
2) To start, click “Reload The Frame List” to refresh both areas where you will be able to select your Edited Frame.



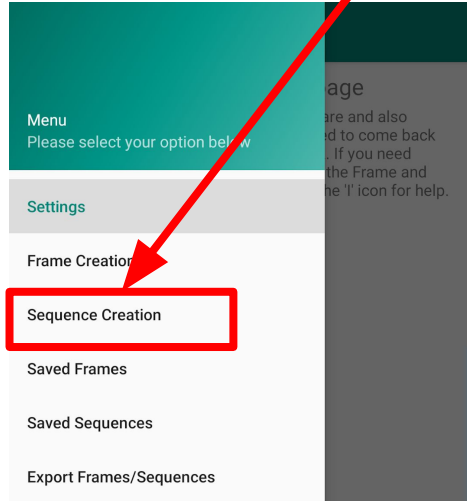
3) Click the switch, to swap to the Edited Frame List.



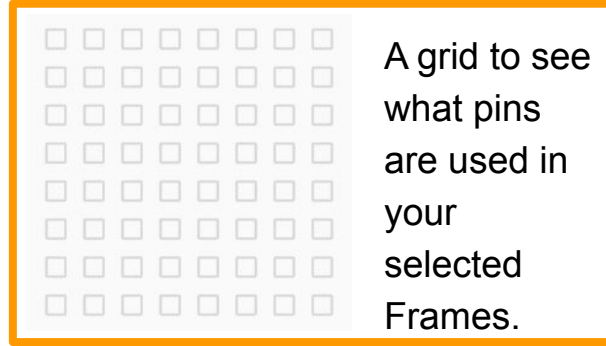
4) Click “View The Selected Frame” to see a graphical representation of your Edited Frame, and view the contents.



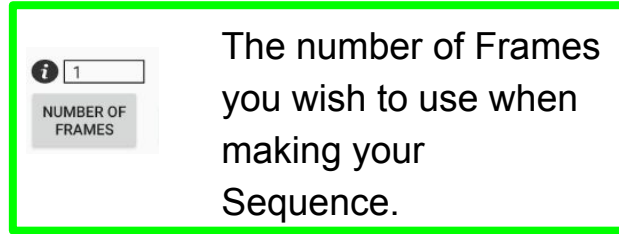
To create your Sequence, click "Sequence Creation".



## Making a Sequence

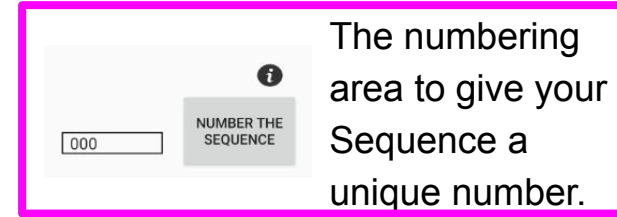


A grid to see what pins are used in your selected Frames.

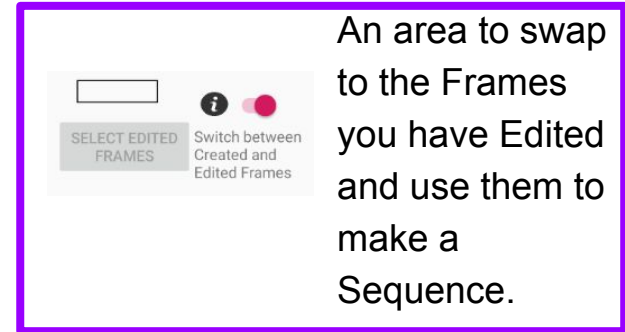


The number of Frames you wish to use when making your Sequence.

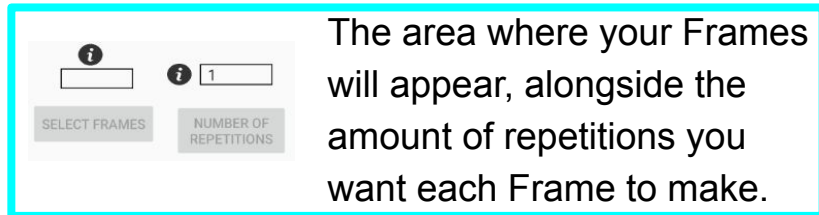
You will be presented with everything you need to make a Sequence. On this page you will find:



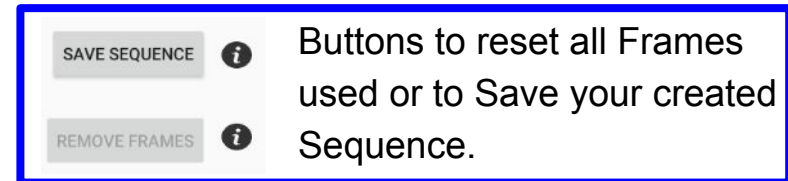
The numbering area to give your Sequence a unique number.



An area to swap to the Frames you have Edited and use them to make a Sequence.



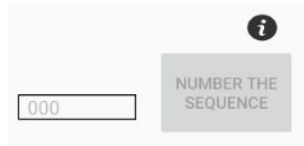
The area where your Frames will appear, alongside the amount of repetitions you want each Frame to make.



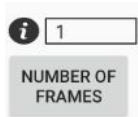
Buttons to reset all Frames used or to Save your created Sequence.

## Making a Sequence - Created Frame

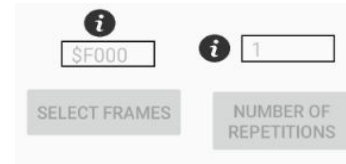
- 1) To start, click “Number The Sequence”, this should appear in the bottom left of the screen and also grey out the button.



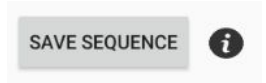
- 2) Select the amount of Frames you wish to use, as you have made one Frame, select 1.



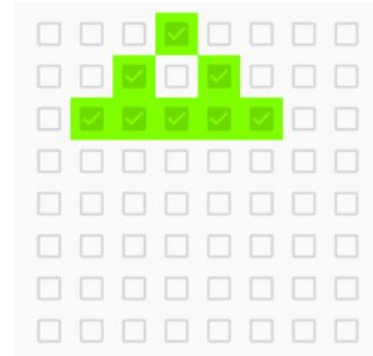
- 3) Select your Frame from the list and also use the default repetition value of 1.



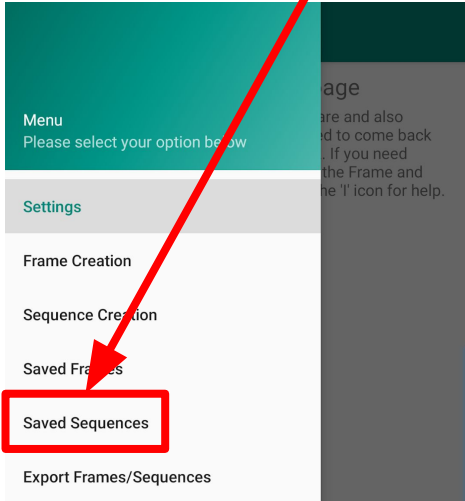
- 4) Once finished, click “Save Sequence” to save your created Sequence.



This should provide you with a graphical representation of what the Frame looks like, inside the Sequence.

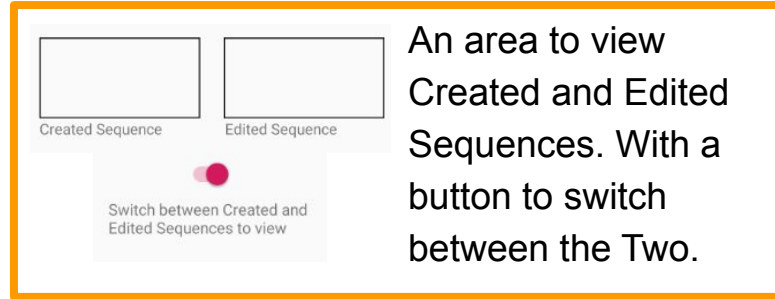


To view your  
Sequence, click  
“Saved Sequences”

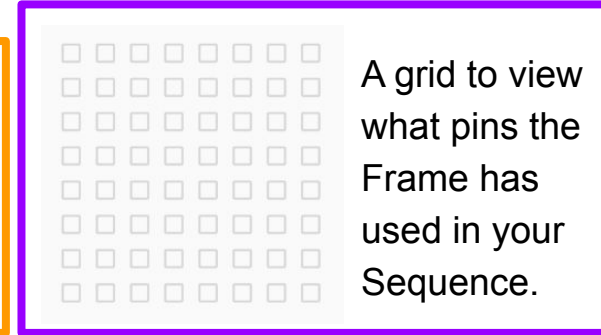


## Viewing a Sequence

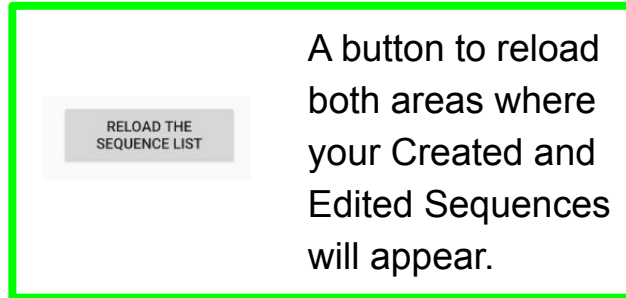
You will be presented with everything you need to view any Sequences you have created. On this page you will find:



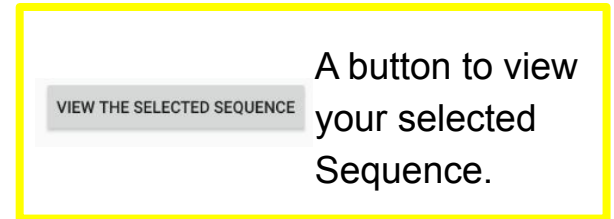
An area to view  
Created and Edited  
Sequences. With a  
button to switch  
between the Two.



A grid to view  
what pins the  
Frame has  
used in your  
Sequence.



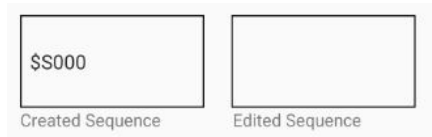
A button to reload  
both areas where  
your Created and  
Edited Sequences  
will appear.



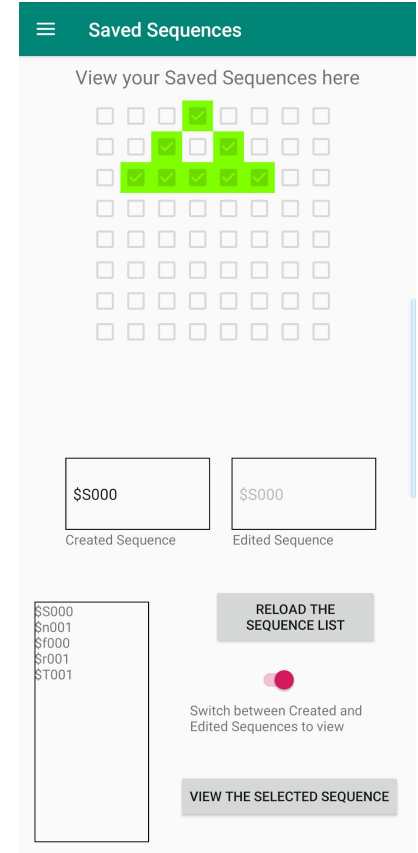
A button to view  
your selected  
Sequence.

# Viewing a Sequence- Created Frames

- 1) To start, click “Reload The Frame List” to refresh both areas where you will be able to select your Sequence.



- 2) Click “View The Selected Frame” to see a graphical representation of your Sequence, and view the contents.

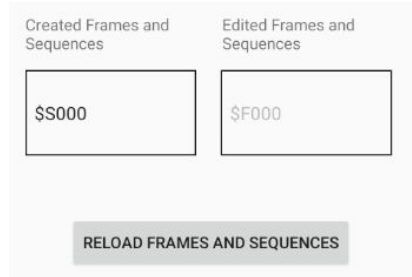




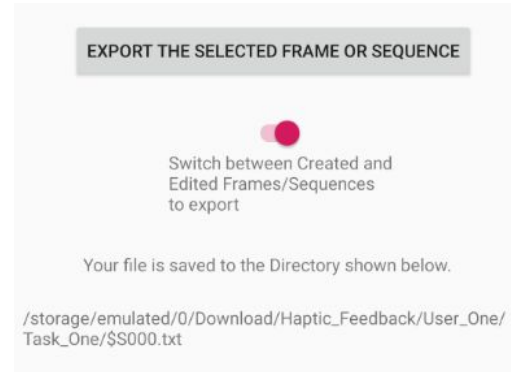
## Exporting a Sequence - Created Frame

1) Click back to “Export Frames/Sequences” screen to get started.

2) To start, click “Reload Frames and Sequences” to refresh both areas where you will be able to select your Sequence.



3) Click the “Export The Selected Frame or Sequence” to Export your selected Sequence. The directory it goes into, will be displayed below.

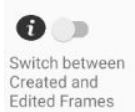
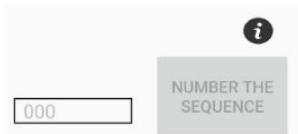


## Making a Sequence - Edited Frame

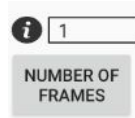
1) Click back to “Sequence Creation” screen to get started.

2) To start, click the toggle switch to swap to using Frames that you have Edited. This will grey out one box and un-grey another.

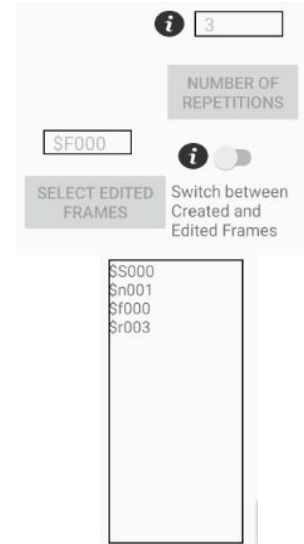
3) Click “Number The Sequence”, this should appear in the bottom left of the screen and also grey out the button.



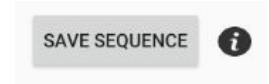
4) Select the amount of Frames you wish to use, as you have edited one Frame, select 1.



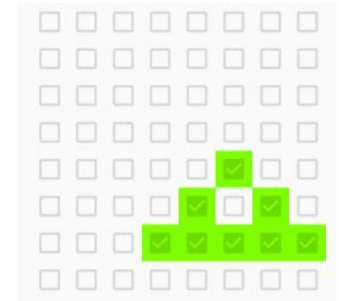
5) Select from the “Select Edited Frames” area, your edited Frame, and choose its repetitions. Set this to 3.



6) Once finished, click “Save Sequence” to save your created Sequence.



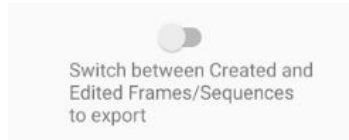
A graphical representation of your Sequence will be displayed like before.



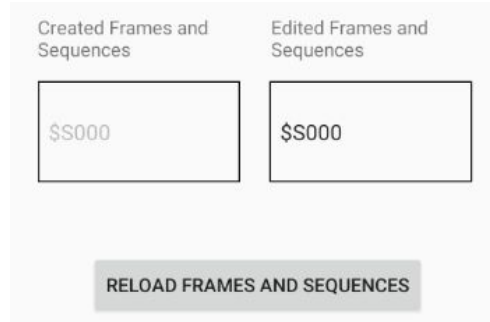
# Exporting a Sequence - Edited Frame

1) Click back to “Export Frames/Sequences” screen to get started.

2) Click the toggle button to swap to Sequences using Edited Frames.



3) Click “Reload Frames and Sequences” to refresh both areas where you will be able to select your Sequence containing Edited Frames.



4) Click the “Export The Selected Frame or Sequence” to Export your selected Sequence. The directory it goes into, will be displayed below.

