
Brief Description of the Features

Paint / Draw

Quartz api has been used to draw line and strokes with different width, color and opacity. While drawing, two image views have been used to provide opacity effect and final drawing. Below touch notifying methods have been overridden

- **touchesBegan** – it is called when the user puts a finger down on the screen. This is the start of drawing
- **touchesMoved** – this is called when the user swipes finger on the screen.
- **touchesEnded** – this is called when the user lifts the finger from the screen. This is the end of drawing

All of the above methods call a common method 'drawLine' which draws line on the temporary image view with opacity as 0.3 and when the drawing is finished the drawing is saved on the main image view from within touchesEnded and the tempImageview's image is set to nil. This gives the opacity effect on screen

Undo/ Redo

A singleton class (UndoRedoHandler.swift) has been used to achieve the Undo/Redo operation

Every time a drawing ends i.e. touchesEnded method is called, the final drawing image is added to the list of available undo actions by calling below method from **touchesEnded** method

undoRedoHandler.addToUndo(mainImageView.image!) where
undoRedoHandler:UndoRedoHandler = UndoRedoHandler.getUndoRedoHelper(); //singleton

When user click on the undo button, the system sets mainImageView's image as the last/top image from the undo stack.

mainImageView.image = undoRedoHandler.popFromUndo()

The last/top image is removed from the undo stack and is added to the redo stack to support the redo action.

When the user click on **redo**, the system sets mainImageView's image as the last/top image from the redo stack.

mainImageView.image = undoRedoHandler.popFromRedo()

The last/top image is removed from the redo stack and is added to the unod stack to support the undo action

Erase

When user taps/clicks on the Erase button, the app creates a slider on the fly, allowing user to select custom eraser width and then as user swipes through the drawing panel, the system draws a opaque line with line color same as the background color of the mainImageView by calling the drawLine method and thereby creating the erase effect.

Settings

When user clicks on Settings button, user is taken to the Settings page via Segue. The Settings page provides below options

1. Brush width – a slider to set paint brush width
2. Opacity – a slider to set the opacity
3. RGB – Sliders to set RGB color component
4. Preview area – generates a preview based on user selection
5. Close button – saves the user selection to the singleton datamodel (PaintModel.swift) and takes the user back to the drawing screen where user can draw with above properties

RESET

Resets the drawing panel to a blank slate.

Color Buttons

The color buttons at the bottom of the app, provides quick color selection option to the user. Currently, only 4 colors options have been provided but more colors can be added as future enhancements.

Share

This allows the user to either share the drawing with others (as a single image) via iMessage,mail, social networks etc or save in the device

Open

This allows the user to open and edit an image from the iphones photo library

Camera

This action opens the iphone camera and allows the user to capture and edit a photo captured by the camera.

Text

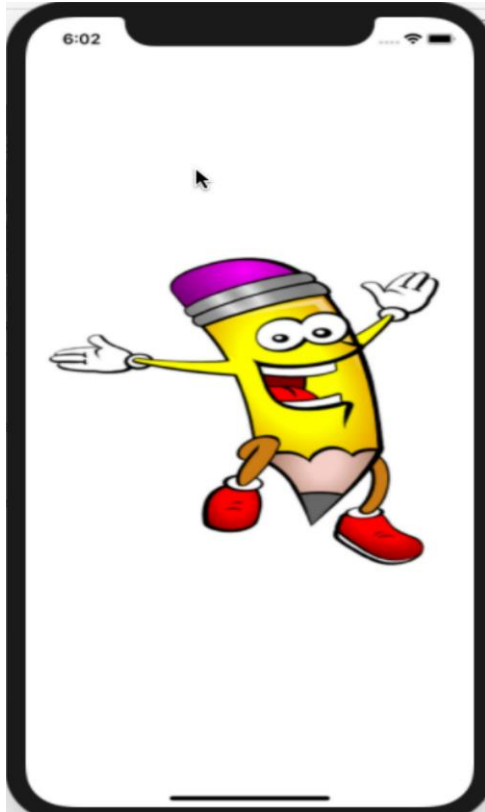
When user taps on the Text button the system open a alert popup with a textbox allowing user to enter custom text and eventually the entered text is added to the drawing

Zoom In-Zoom Out

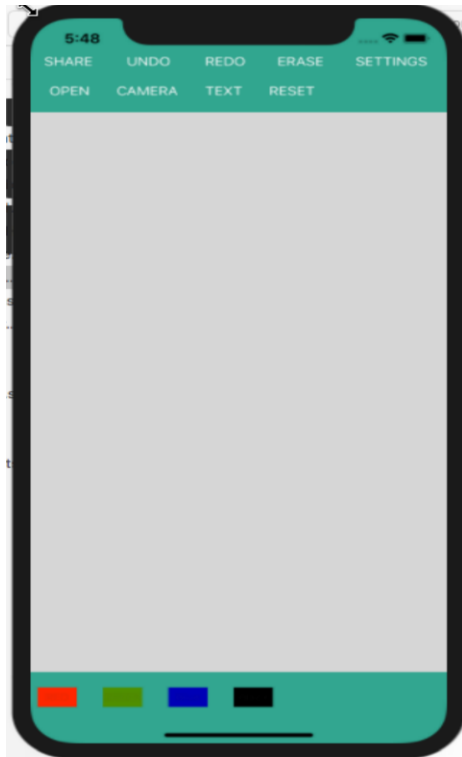
This enables user to zoom in/out the drawing area. It uses the Pinch gesture

Screenshots with Description

Launch Screen:



Initial Screen: when Drawing Application get launched.



You can choose color from bottom bar and start drawing anything on the application screen.



The selected color will be highlighted and accordingly setting got changed in setting tab when you select it.

Share Button: You can share your drawing to saved contact person, save it on your phone and can share it on icloud Drive also.



Open:

Undo: You can remove the last added draw part from the current image.



Last 'o' from the
above painting got
deleted

Redo: To undo last change from the drawing screen.



Last letter 'o'
reappear which was
deleted by pressing
undo click

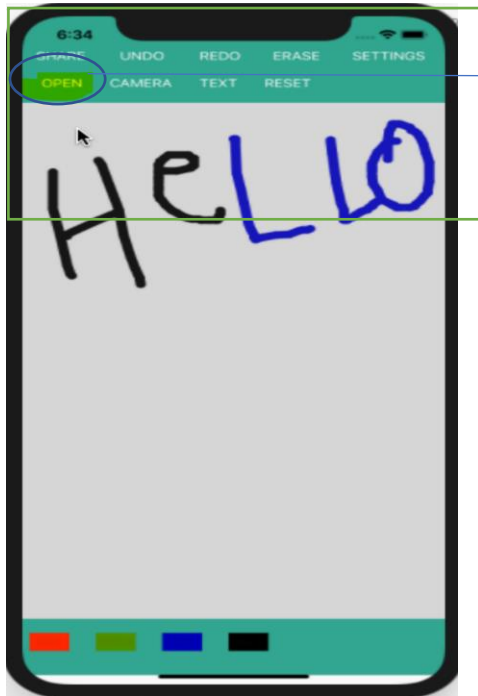
Erase: you can choose erasers size from the progress bar and erase the present drawing on screen



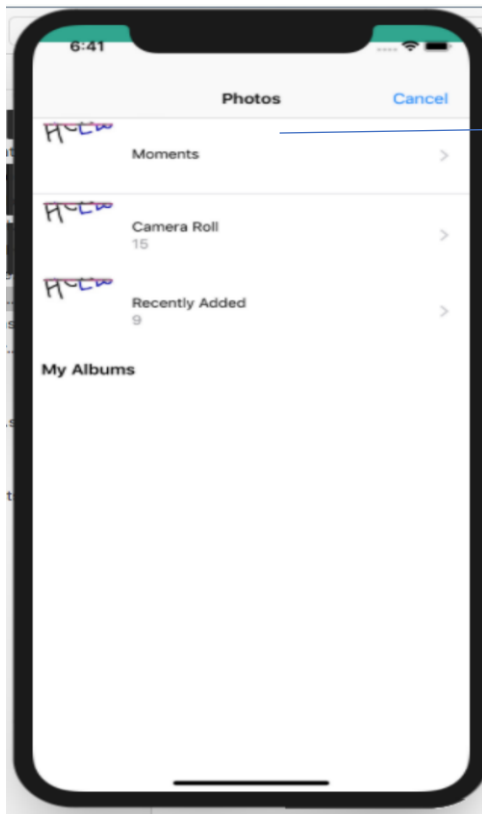
You can click on Erase button. Below progress bar will appear by which you can select size of eraser. Once you select the size of the eraser, the scroll bar will automatically disappear from the screen.



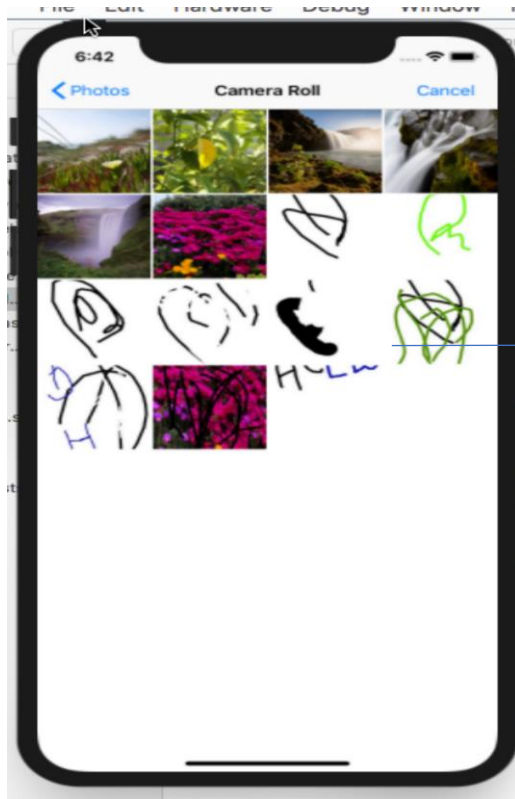
Open: You can reopen the previously saved image or image from you photo album. You can edit it and can resave it or share it.



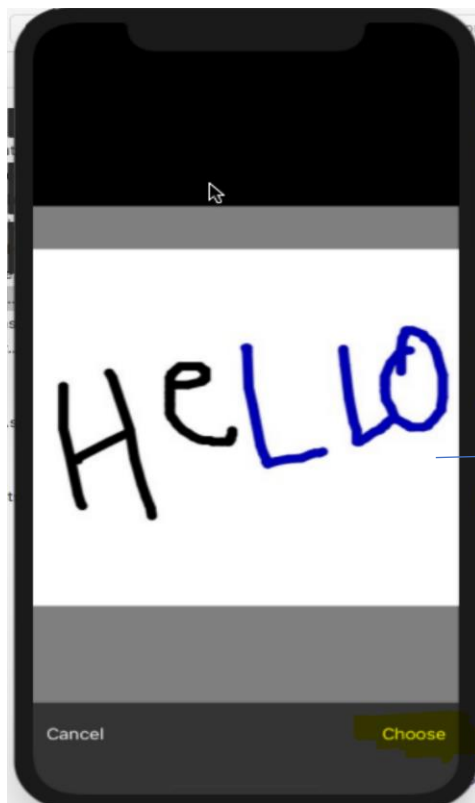
Click to open previously saved image or photo albums



Next screen after clicking on open button. Select from the list. Lets say we are selecting here camera Roll. The coming screen will as per below.



You can select any image from here. You can see last image is current one which was saved during Share button was pressed.



Adjust image in the frame and click on choose button below

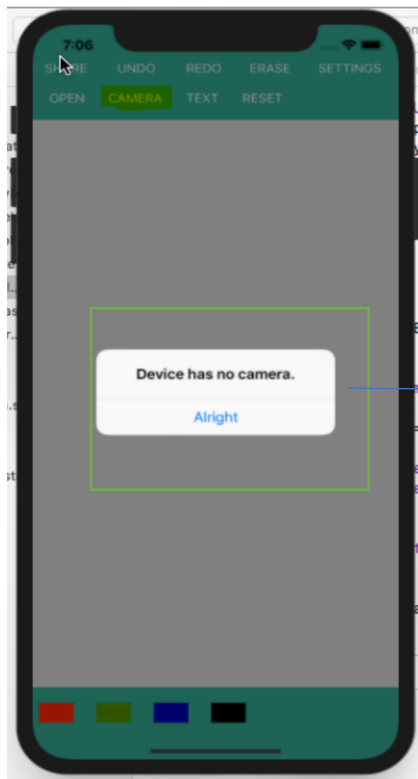


You can edit the image



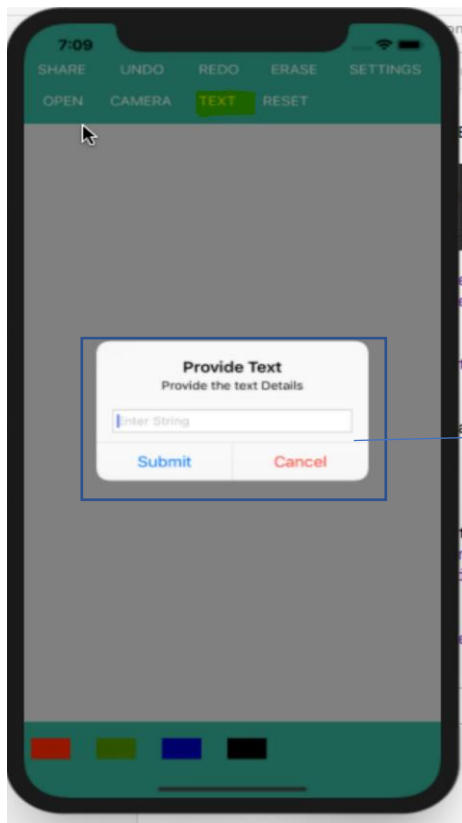
Edited image

Camera: You can take a picture from camera and edit it.



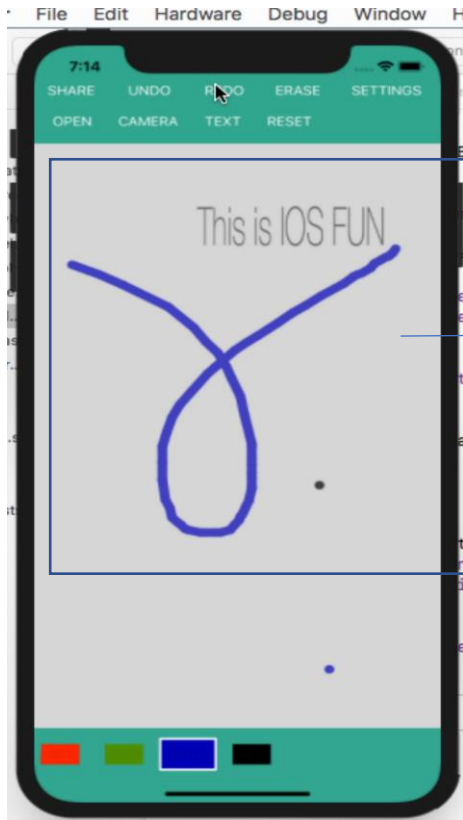
As this is running from simulator, camera is not available. To avoid crashing of application, we have provided alert box over here. Click on Alright and alert box will disappear.

Text: Provide text as a input and convert it into the image which can appear on the screen.



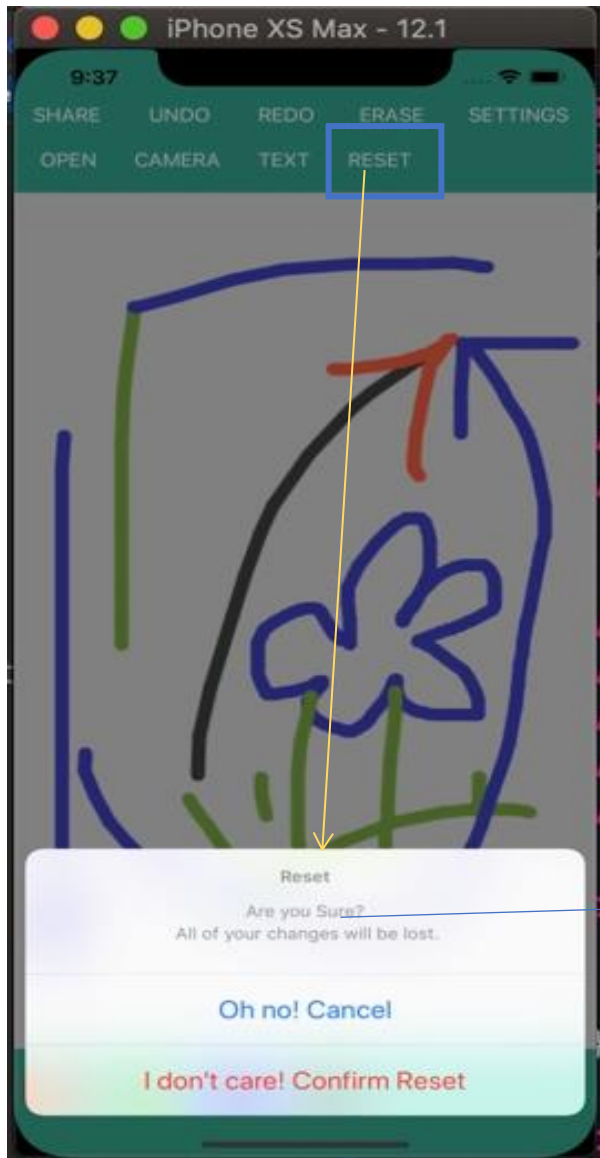
When you click on the 'TEXT' button, the alert box will appear in the middle.

Provide string and click okay.



We have provided "This is IOS fun" in the alert box and now can see it appear with previously drawn image on screen.

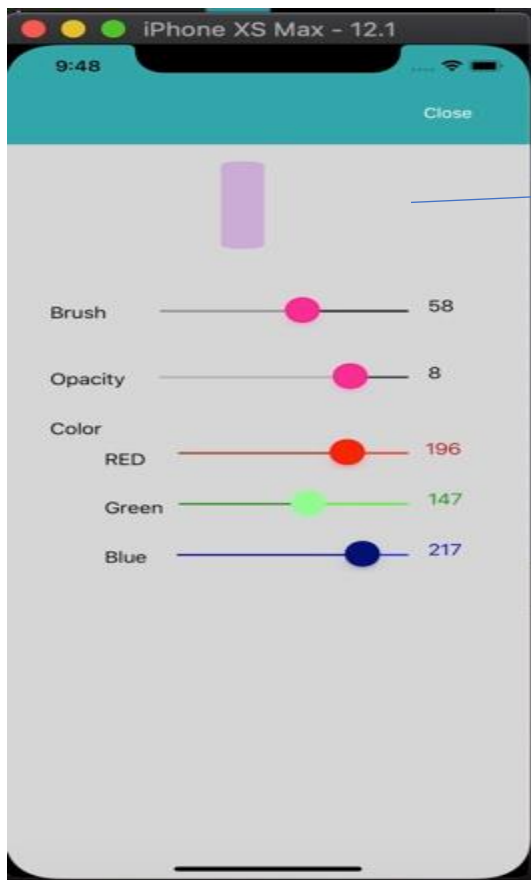
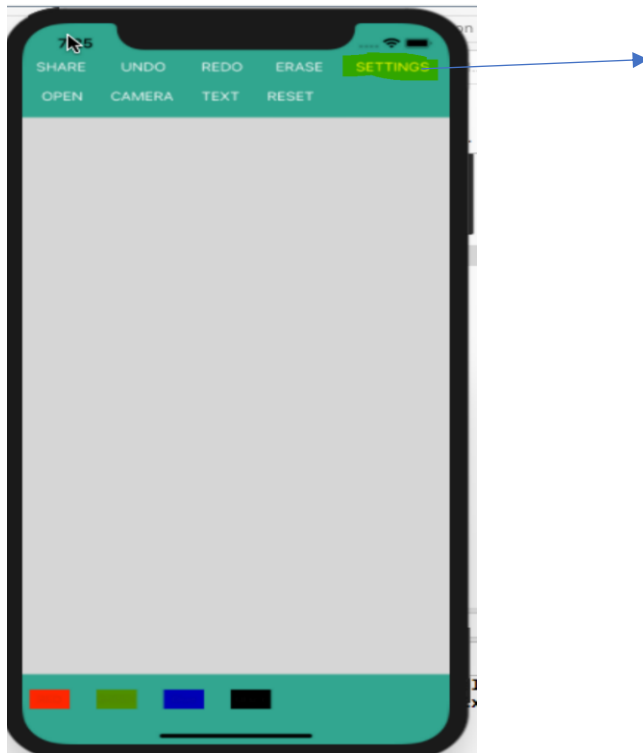
Reset: You can clean whole screen using this button. When you click the button, an alert box will appear and ask you for the confirmation.



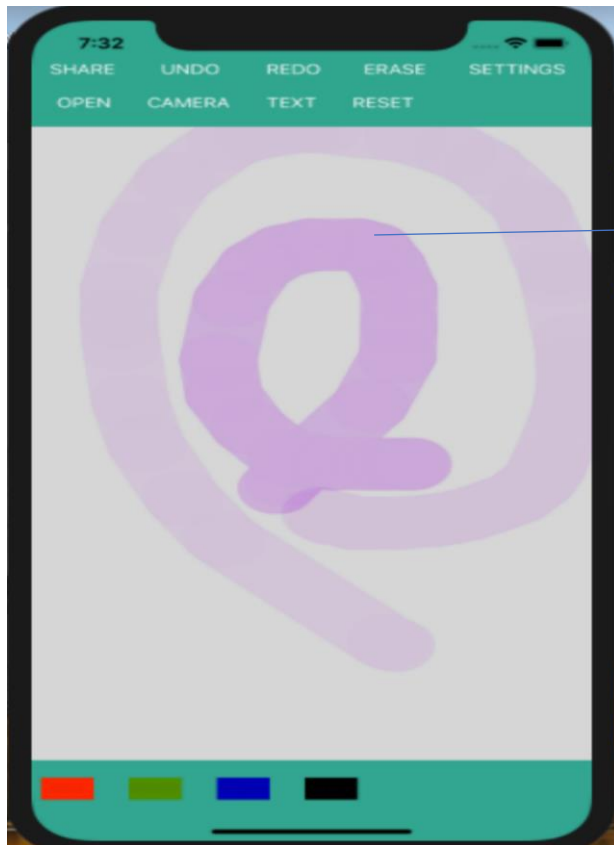
Alert box for cancel or confirm action on reset

Settings: You can change the color, size of brush and opacity from this button.

Click on setting button and below screen will appear.



When you select your color from initial screen, that setting got display here or else You can change the color and brush size using progress bar and making it custom color and brush setting. With that you can draw on the screen with selected setting of brush and color. Click on the **close** at the end to go back to main original drawing screen.



Drawing with changed brush size and color

Documentation:

Reference:

<https://www.raywenderlich.com/5895-uikit-drawing-tutorial-how-to-make-a-simple-drawing-app>

<https://www.hackingwithswift.com/example-code/core-graphics/how-to-draw-a-text-string-using-core-graphics>

Note : Drawing Application is designed and tested with iPhone Xs MAX in portrait mode.