appleSTEMs

Science Technology Engineering Math
Software for iOS and OSX

Tonight's Delights

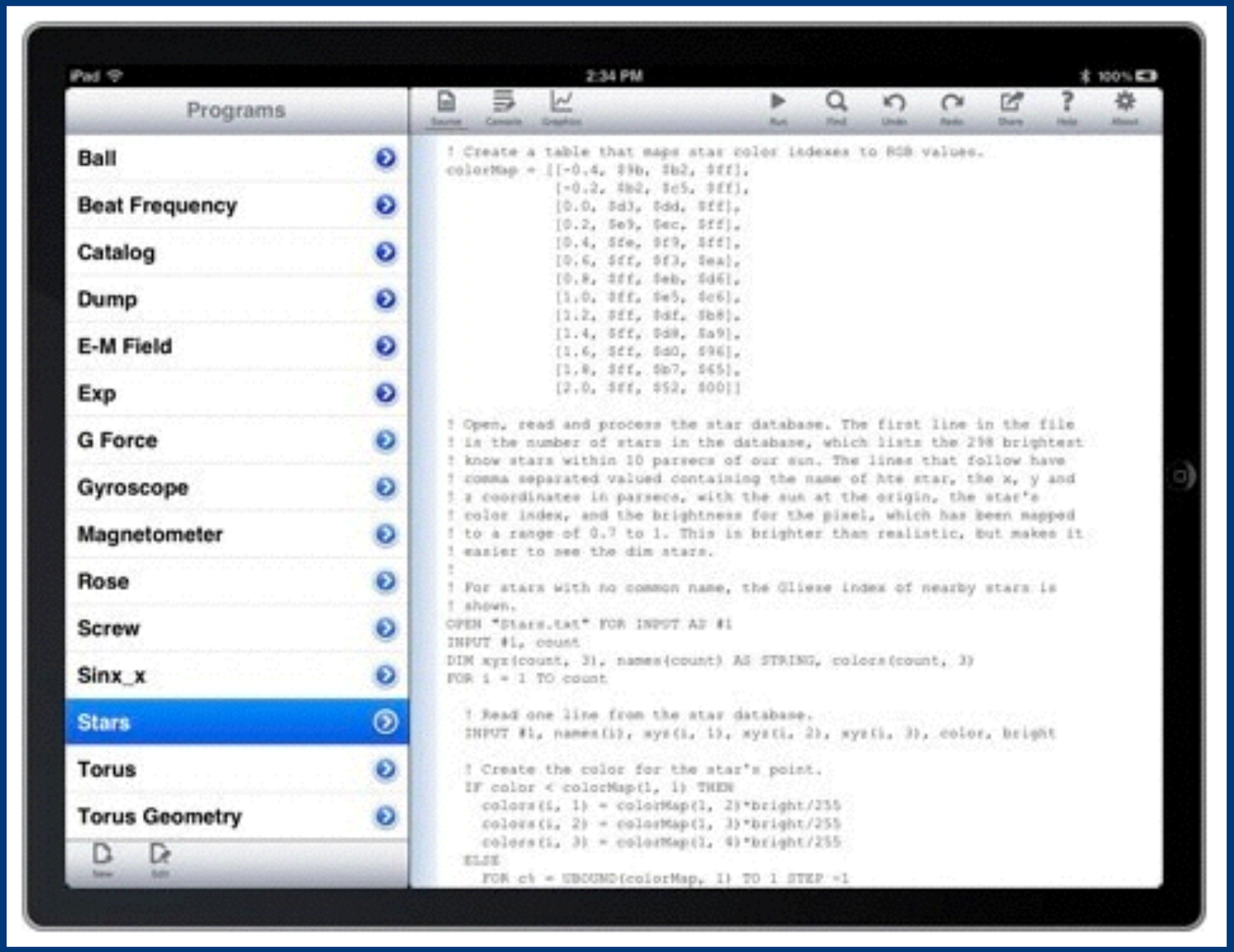
- TechBASIC
- fsim Space Shuttle

TechBASIC

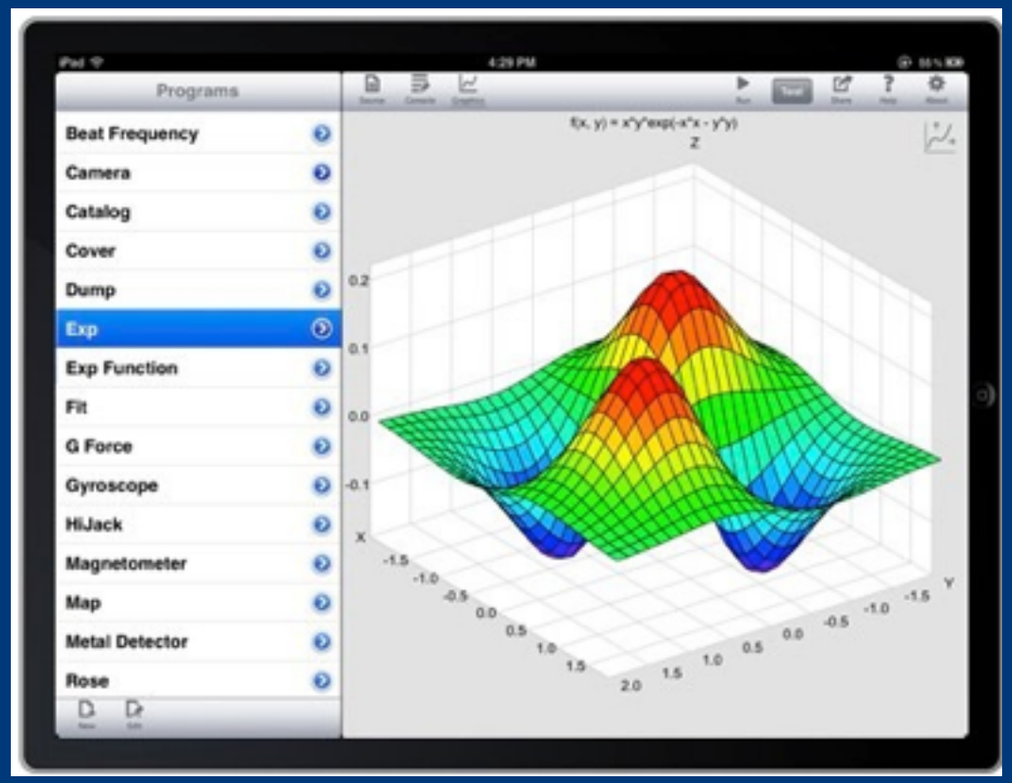
- Full featured BASIC interpreter for iOS
  - Allows you to create BASIC programs for iOS devices on iOS devices
  - Resulting programs can be run on your iOS device without having to go through Apple's developer release process
  - Can access the accelerometer,Bluetooth, GPS, magnetometer and camera on your iOS device
    - Your phone can be a sensor
    - You can control other devices through Bluetooth
  - Additional data input can be accessed through an A/D interface {HiJack} that plugs into the headphone jack
  - Full math support with built-in graphics
  - String manipulation supported
  - Data can easily be exported in formats that can be used in other programs

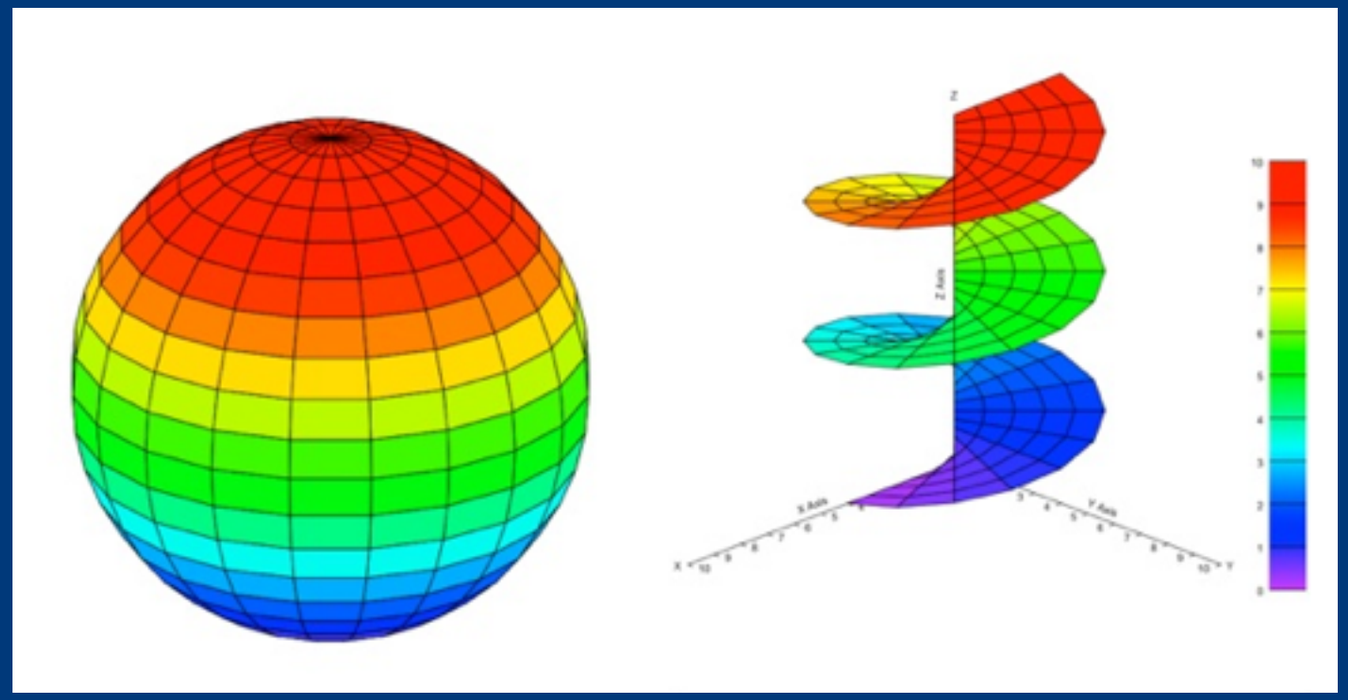
- iPhone, iPad or iPod Touch
- iOS 6.0 or later
- 39.7 MB
- $14.99

TechBASIC


iPad
2:34 PM
100%
Programs
Ball
Beat Frequency
Catalog
Dump
E-M Field
Exp
G Force
Gyroscope
Magnetometer
Rose
Screw
Sinx_x
Stars
Torus
Torus Geometry
! Create a table that maps star color indexes to RGB values.
colorMap = [[-0.4, $9b, $b2, $ff],
[-0.2, $b2, $c5, $ff],
[0.0, $d3, $dd, $ff],
[0.2, $e9, $ec, $ff],
[0.4, $fe, $f9, $ff],
[0.6, $ff, $f3, $ea],
[0.8, $ff, $eb, $d6],
[1.0, $ff, $e5, $c6],
[1.2, $ff, $df, $b8],
[1.4, $ff, $d8, $a9],
[1.6, $ff, $d0, $96],
[1.8, $ff, $b7, $65],
[2.0, $ff, $52, $00]]
! Open, read and process the star database. The first line in the file
! is the number of stars in the database, which lists the 298 brightest
! know stars within 10 parsecs of our sun. The lines that follow have
! comma separated valued containing the name of hte star, the x, y and
! z coordinates in parsecs, with the sun at the origin, the star's
! color index, and the brightness for the pixel, which has been mapped
! to a range of 0.7 to 1. This is brighter than realistic, but makes it
! easier to see the dim stars.
!
! For stars with no common name, the Gliese index of nearby stars is
! shown.
OPEN "Stars.txt" FOR INPUT AS #1
INPUT #1, count
DIM xyz(count, 3), names(count) AS STRING, colors(count, 3)
FOR i = 1 TO count
! Read one line from the star database.
INPUT #1, names(i), xyz(i, 1), xyz(i, 2), xyz(i, 3), color, bright
! Create the color for the star's point.
IF color < colorMap(1, 1) THEN
colors(i, 1) = colorMap(1, 2)*bright/255
colors(i, 2) = colorMap(1, 3)*bright/255
colors(i, 3) = colorMap(1, 4)*bright/255
ELSE
FOR ch = UBOUND(colorMap, 1) TO 1 STEP -1

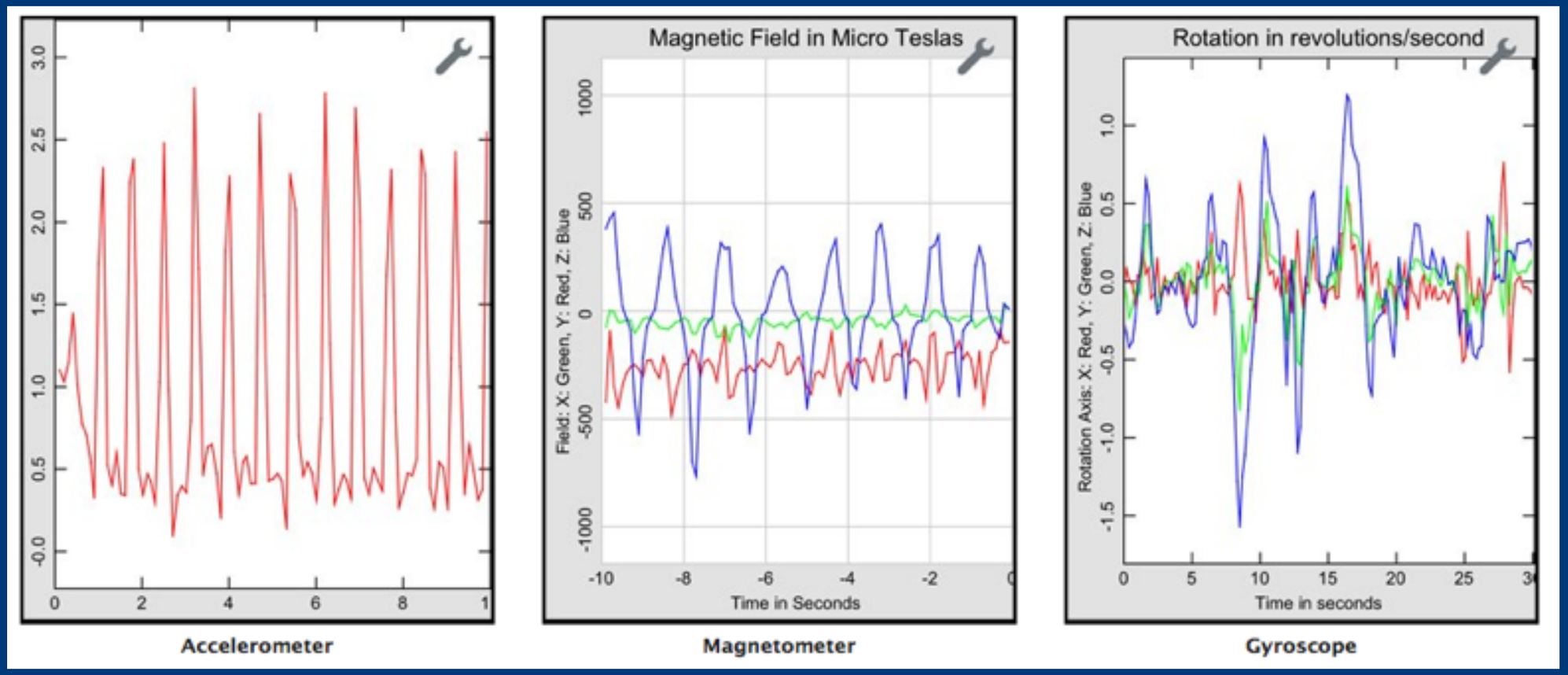
3D Plotting





- Create 2D or 3D plots with a few lines of code
- Plots can also be generated from data files
- Cartesian, Polar or Cylindrical coordinates
- Plots can be rotated or zoomed using swipes and pinches

Data Acquisition

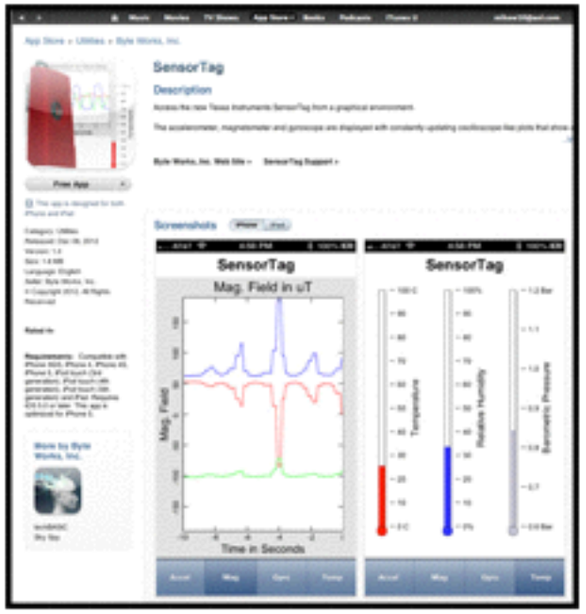


- TechBASIC can read data from iOS device sensors and incorporate that data into its programs
- Additional sensors can be added through HiJack
- Unlimited uses when teaching Physics or for low cost experiments

App Builder

Write

Compile



Sell

- TechBASIC programs can be compiled into apps that can be sold in iTunes using App Builder
  - App Builder is a $49 program that for OSX that integrates with Xcode to produce compiled iOS programs from TechBASIC source code

In the Classroom

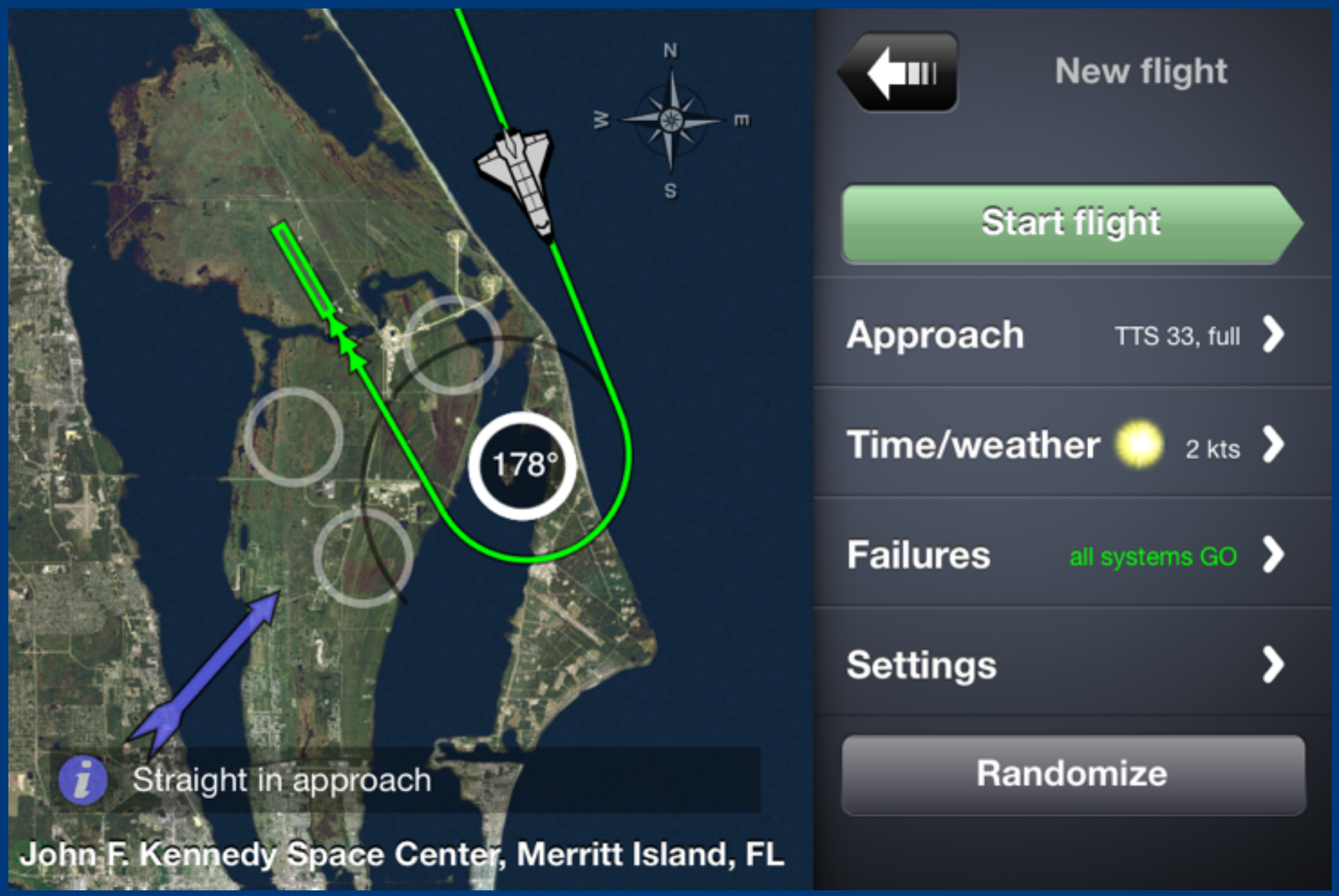
- Can be used to teach Programming and Robotics
  - Uses iPads to teach programming
  - BASIC teaches fundamental concepts used in all programming languages
  - Can be used to control robotic devices
- Can be integrated with Math classes
  - Use as a 'super calculator'
  - An alternative to Mathematica or MatLab
  - Plotting functions can be used to explore math concepts
- Can be integrated with Physics classes
  - Use TechBASIC programs to gather data
    - Measure accelerations on amusement park rides, cars or model rockets
  - Write programs to analyze physics data or to do other calculations
- Can be integrated with Astronomy classes
  - Do calculations of orbits and other astronomical phenomena
  - Use robotic devices to simulation operation of rovers on Mars
- TechBASIC uses for STEM education are only limited by your imagination.

fsim Space Shuttle

- A real time simulation of landing the Space Shuttle
  - Subsonic portion of flight only
  - Starts at 10K ft or 50K ft depending on approach being flown
  - Does not include entry phase
- Includes graphics that rival those used by NASA back in the 90's
- Allows landings at KSC and Edwards AFB
- Variable approach directions and weather conditions
- Various out-the-window and exterior views available

- iPhone, iPad or iPod Touch
- iOS 5.1.1 or later
- 45.6 MB
- $4.99

fsim Space Shuttle



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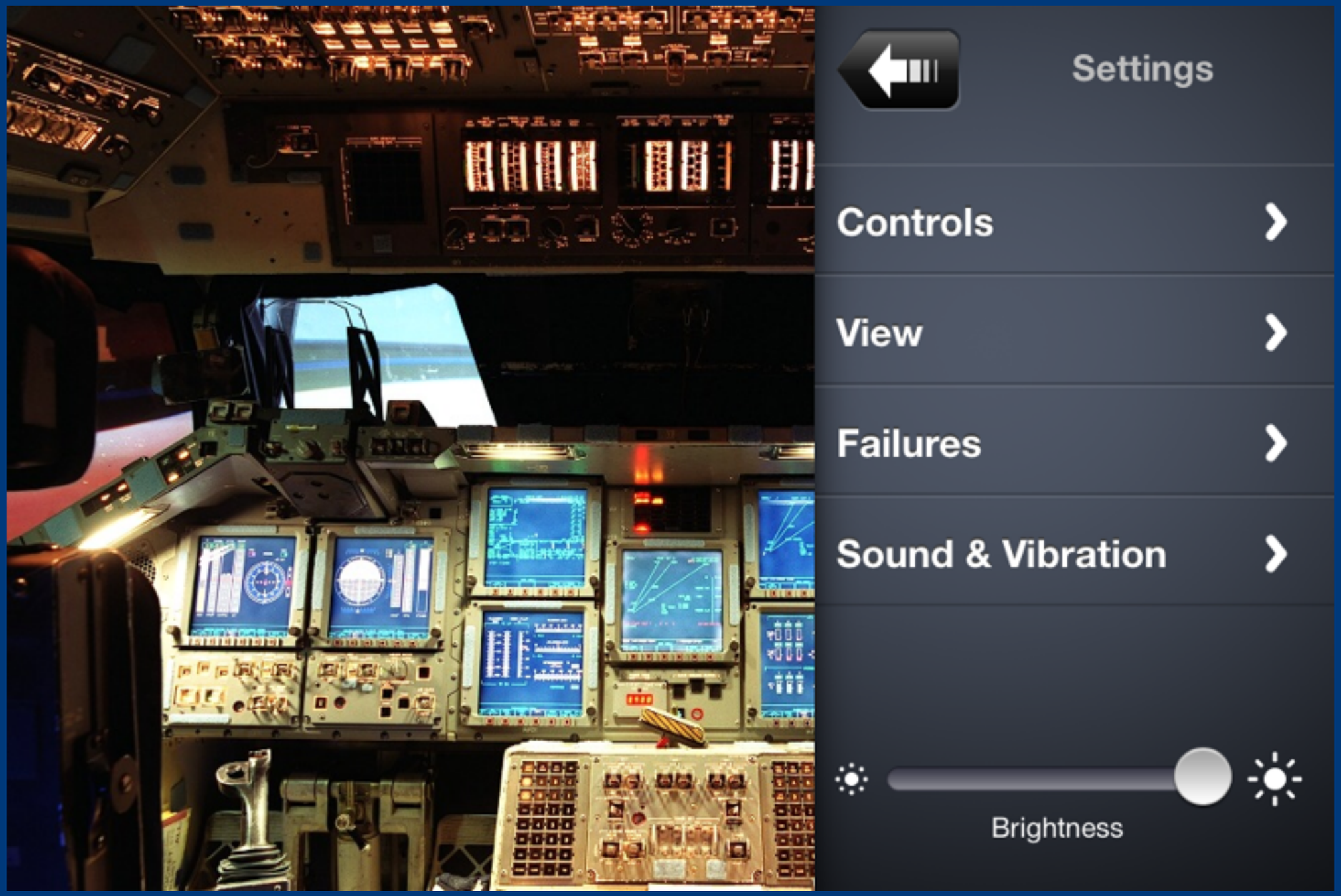

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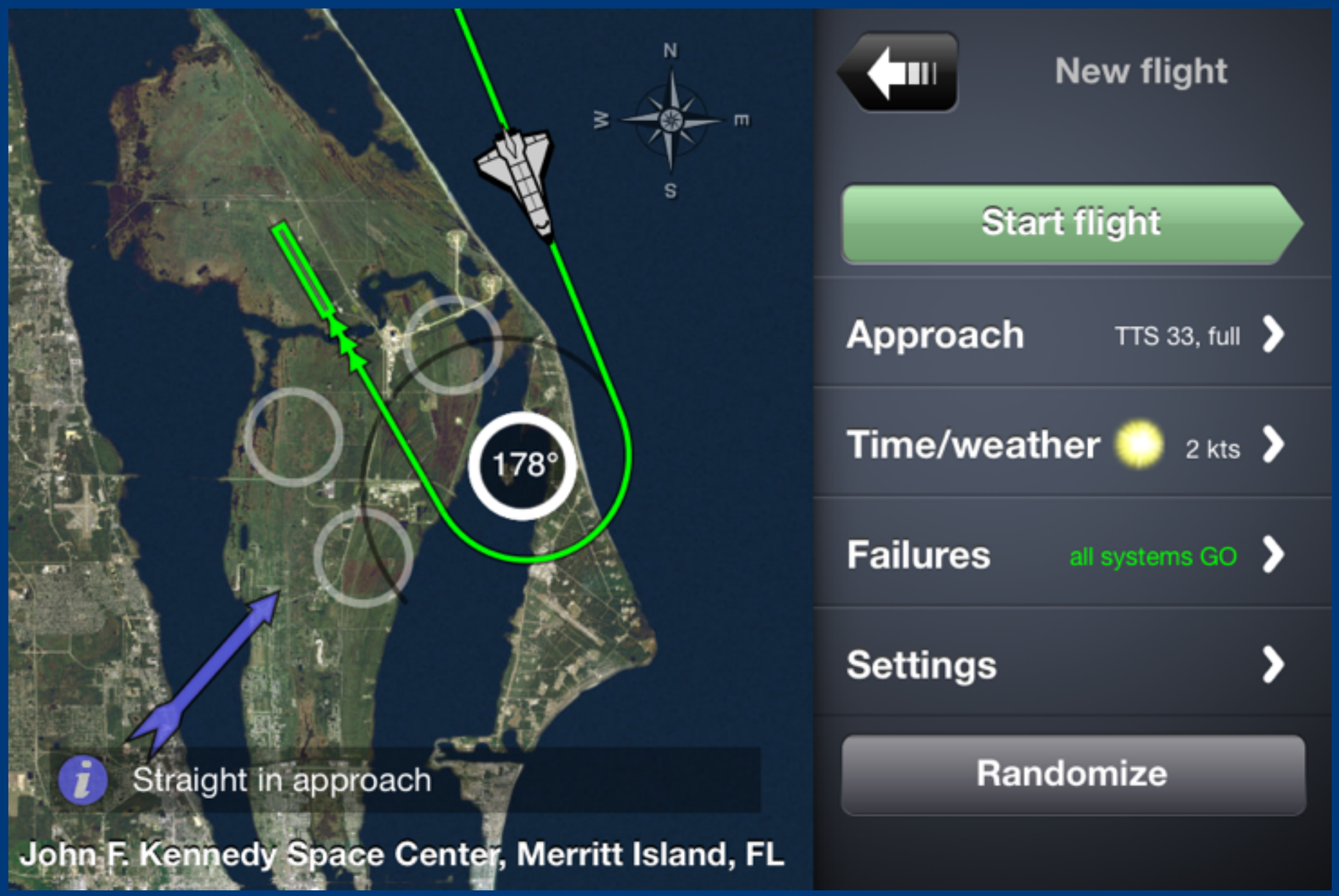

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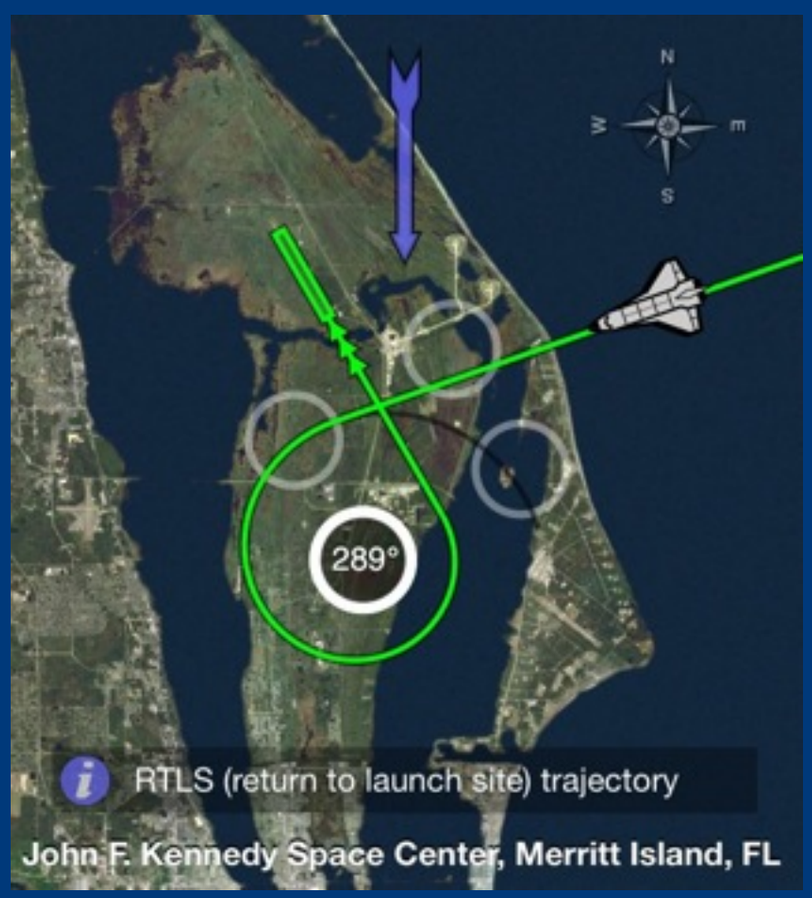
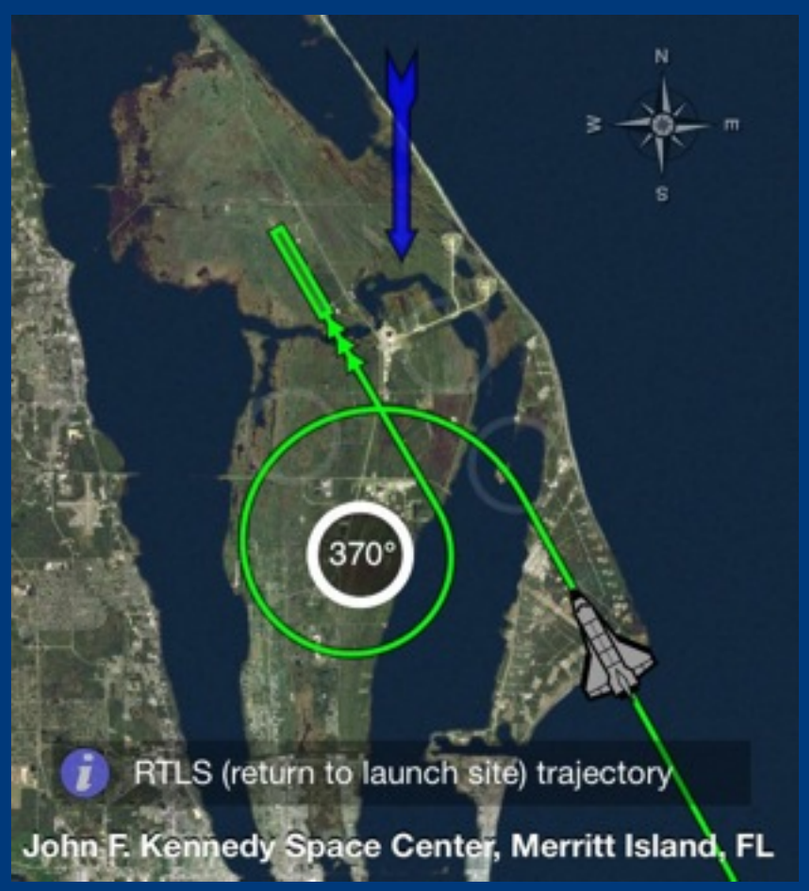
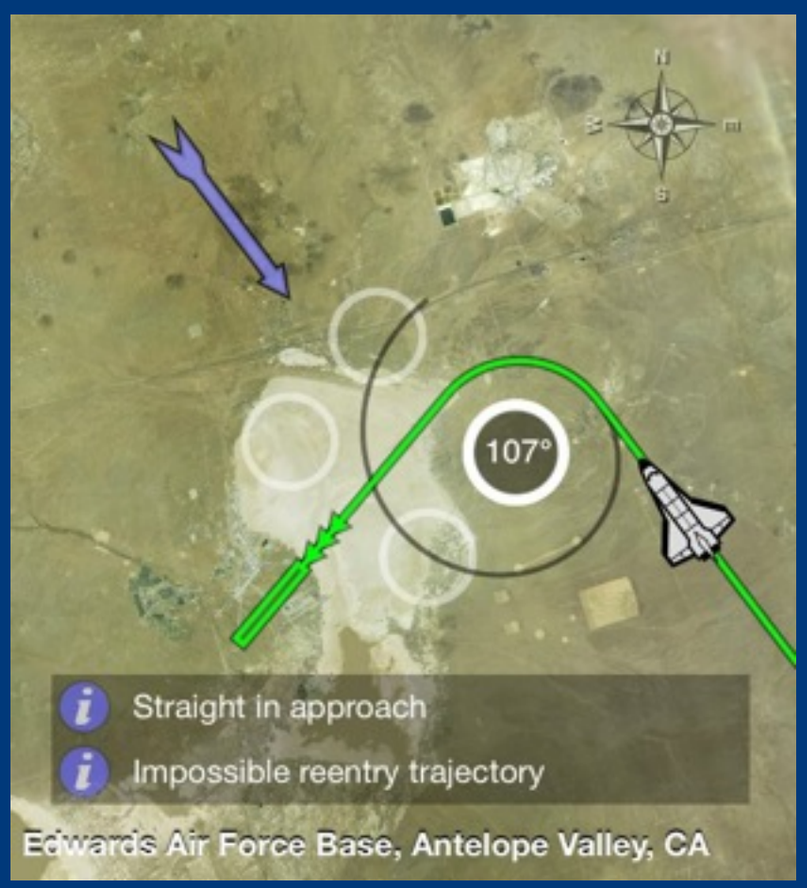






fsim Space Shuttle

DO NOT USE FOR FLIGHT

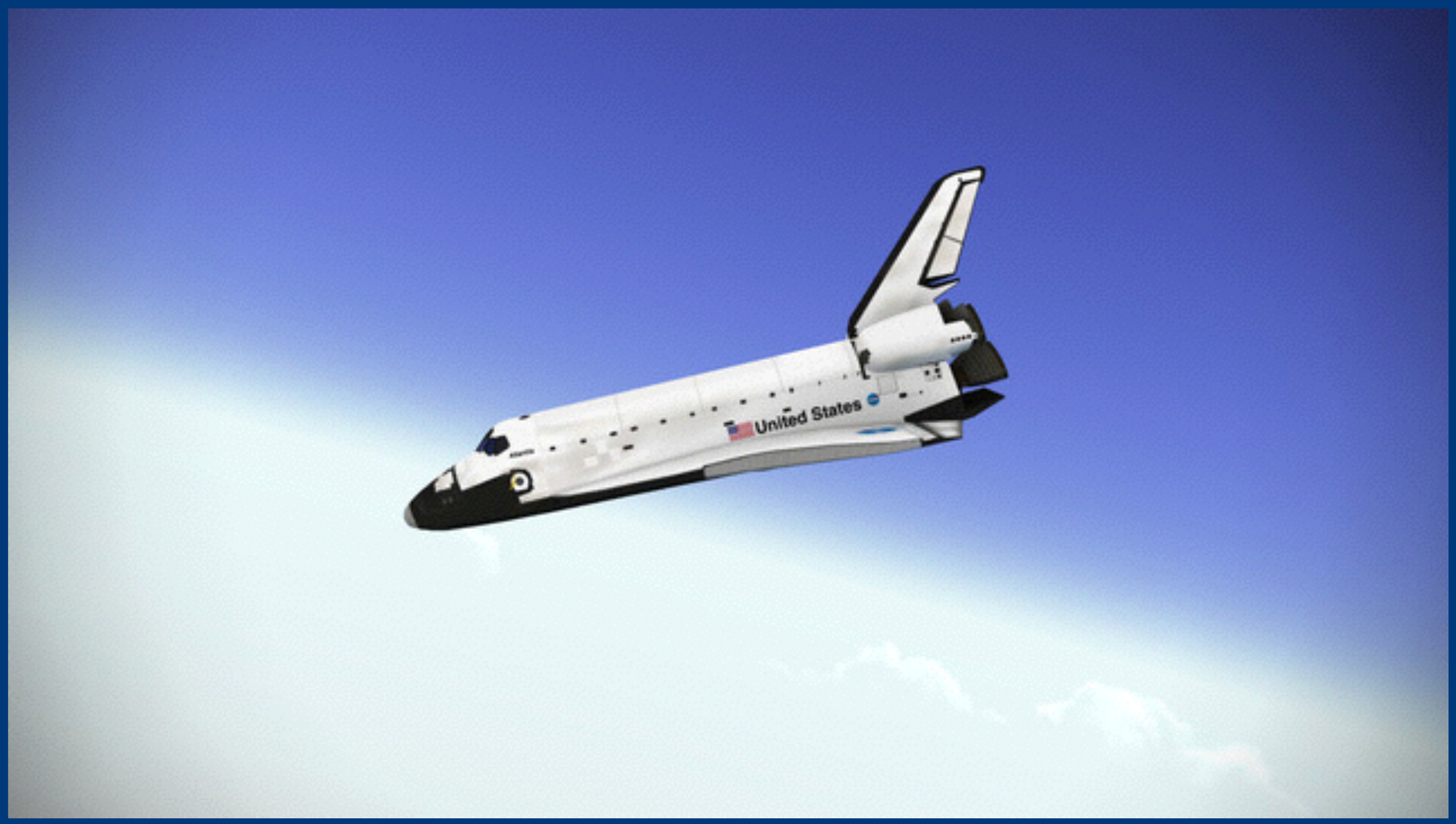
F-Sim Space Shuttle

Welcome to F-Sim Space Shuttle. Part one of this manual contains a brief overview on how to steer the orbiter with your iPhone or iPod touch, an introduction to the head up display (HUD), a few tips on how to perform a successful landing and answers to frequently asked questions.

Menu

Run demo

fsim Space Shuttle



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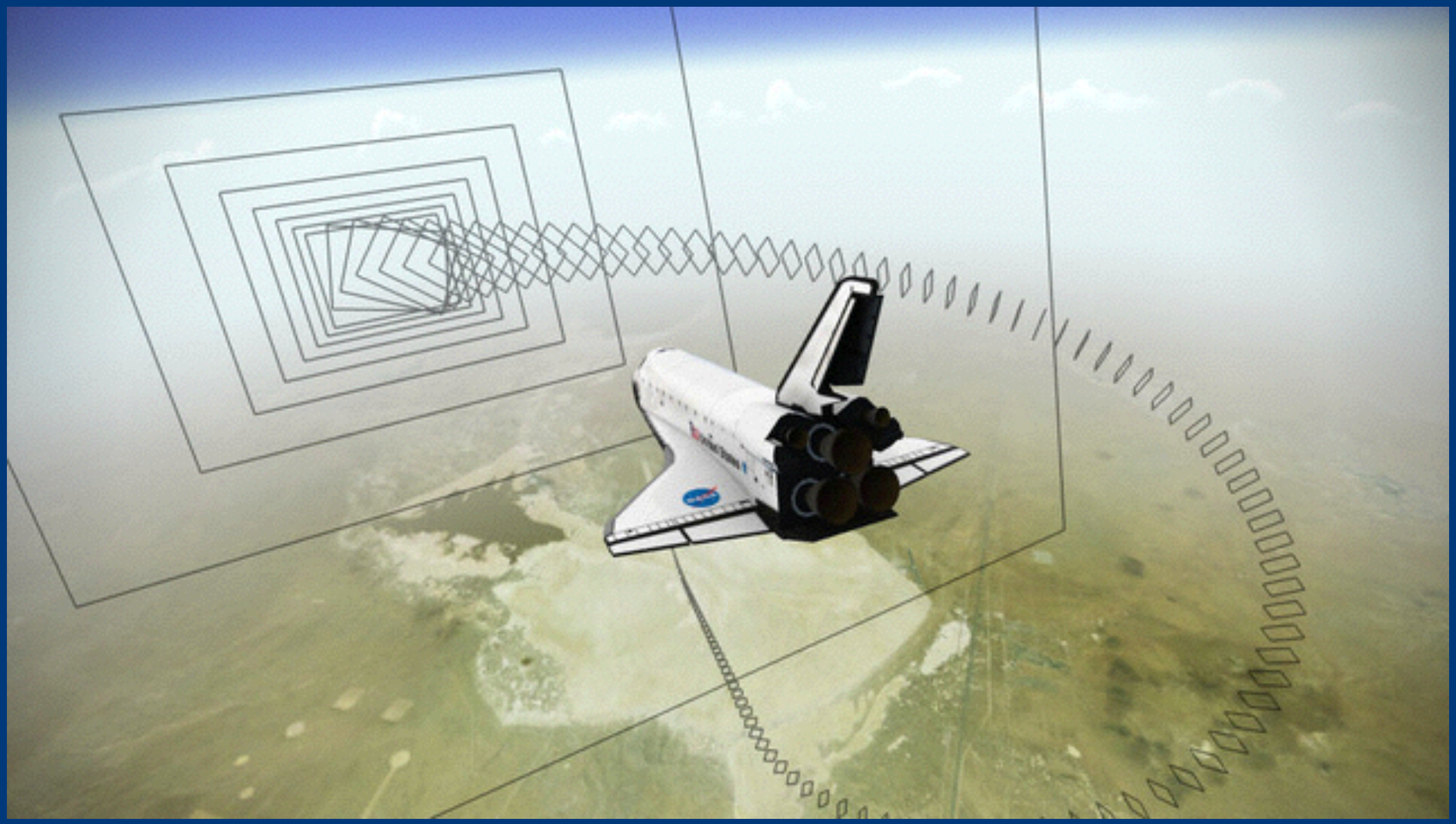

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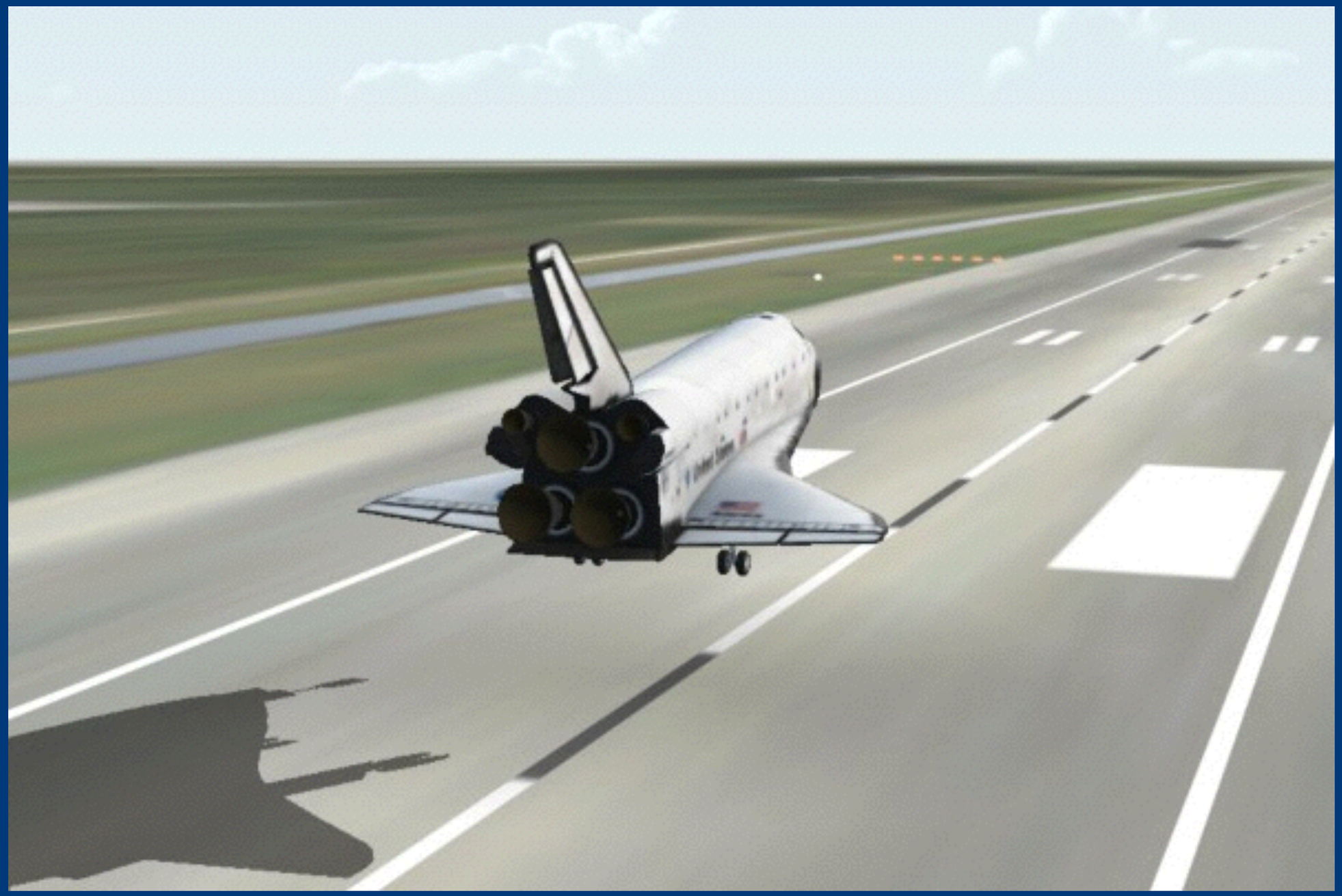

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Science Technology Engineering Math
Software for iOS and OSX

If you have a favorite STEM app then tell me about it via email

wwjames@earthlink.net