

Xavion Users Manual

INTRO TO XAVION

Xavion backs up countless displays in you airplane, including synthetic vision, speed, altitude, heading, map, weather, 2-D and 3-D enroute guidance, approach plates, and many more systems as well.

Three things that Xavion currently provides that NO other avionics in the world provide, in ANY airplane, at ANY price, are:

1: 3-D airspace: Xavion shows 3-D airspace for the USA on the synthetic vision, making it as intuitive and easy to avoid airspace as it is to walk around (or jump over!) an obstacle as you walk across a room.

2: Wake turbulence: Xavion tracks the location of other aircraft vis ADSb (if you have an ADSb receiver!) and calculates the location of wake turbulence from each airplane based on wind and time, presenting wake turbulence of other craft to you on both the map and synthetic vision.

3: Engine-failure guidance: Internally, Xavion constantly simulates many possible glide-paths to follow to all airports within gliding range in the event of an engine-failure. Once it has found what it believes is the best-available path, it shows that path to you as a series of hoops you can glide through if the engine fails. These hoops consider wind and other weather, as well as airport proximity and runway size.

So the power of Xavion to back up systems and give situational awareness is incredible, but first you need to set it up!

HARDWARE: SUPPORTING XAVION

Xavion runs on iOS iPads and iPhones, as old as the ORIGINAL iPad MINI as of this writing!

Any iPhone or iPad since (and including) the first-gen iPad Mini that has GPS is enough hardware to run Xavion.

Unlike many other Apps, Xavion DOES estimate your attitude with the iPad internal GPS and accelerometers, so Xavion can run alone, connected to no external devices.

BUT, to get ADSb weather and traffic, which add to safety and utility hugely, you will want a portable ADSb receiver that outputs in the public GDL-90 format.

Currently, these receivers include the Stratus 3, Stratux, complete iLevel product line, Sagetech Clarity, and any other portable receivers that broadcast in GDL-90.

Once you get one of those, they will pick up both ADSb weather and traffic and send them to Xavion by WIFI.

Once Xavion has this information, it displays weather and traffic on the map, and gives more accurate engine-out guidance, because it has an up-to-date 3-D model of the WIND!

A portable ADSb receiver is a small amount of money well-spent for the benefit that it gives you: More information than you can get from the entire avionics stack of a slightly older airplane for just a small amount of money.

X-PLANE: PRACTICING IN XAVION WITH 100% SAFETY

A REALLY fun thing to do that lets you learn Xavion with no safety risk and virtually no cost is to practice it in X-Plane!

Here's how:

->Fire up Xavion on a phone or pad **that is running on your home or office WIFI.**

->Grab the latest X-Plane from X-Plane.com. Use the free demo if you want, buy it if you want.

->Fire up X-Plane on a Mac/Windows/Linux computer **that is running on the same WIFI you chose for your pad or phone above.**

->In X-Plane, go to the graphics equalizer icon for settings in the very upper-right of the screen.

->In there, go to the NETWORK tab.

->In there, find the “iPhone, iPad, and External Apps” section and expand it to see Xavion or other EFB.

->Add a connection... obviously the phone or pad that you just started Xavion on.

Done. Now whatever you fly in X-Plane drives Xavion on the phone or pad.

Be sure to set some bad weather in X-Plane, and play with the weather settings on the map in Xavion!

NOTE: Be sure to allow 5 or 10 minutes for X-Plane to send all that ADSb weather across... it takes same time, as in reality!

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SOFTWARE: USING XAVION
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Hopefully with an ADSb receiver, it’s now time to learn how to use the App. All of the groups of functions in Xavion are accessible with ONE touch on your iPad or iPhone, so you never get driven down into nested sub-menus and sub-pages: Each group of functions, including the PFD and MAP, are always available with just one touch. Let’s go through each group as a single chapter. You will see the icon for each group at the bottom of your pad or phone running Xavion.

ADD AIRPORT:

See the “ADD APT” icon, lower-left on your pad or phone. Xavion comes with a large, FAA-certified airport database, so no custom airport should ever be needed in the USA, and may not be needed abroad. But, if you want to enter your own airport into the database (perhaps a private field) or live outside of the USA where the default airport coverage might not be as thorough, then you can enter custom airports into the Xavion database here. Xavion will consider any airport you enter here for power-off landing, along with all of the other airports in the database that come with the subscription to the App. To add an airport, simply hit the “ADD APT” menu item to take you to the add-airport group, and then hit the ADD button to add a new airport. Type in the airport name and hit the “SAVE” button to create the new airport. Once you’ve done this, go to the EDIT tab and enter the information for this new custom airport. Just touch a number to enter it: It will turn orange, meaning that anything you enter in the orange keyboard will apply to that number. For each runway, you will see two runway numbers, one for each end of course. Hit the GPS button beside any runway location to auto-load your CURRENT latitude and longitude in as the runway location. This is convenient if you want to just taxi or drive or walk out to the runway to enter the endpoints, rather than enter the lat and lon by hand.

Enter all of the custom runways you like.

SET AIRCRAFT:

An aircraft, in Xavion, consists of the V-speeds, glide performance, cruise performance, and weight and balance info for a given airplane.

You only HAVE to enter the simple V-speed and glide performance numbers to use App... just a few V-speeds and three power-off descent rates!

But, if you enter the cruise and weight and balance data, then you can get time and fuel enroute estimates, and a very user-friendly weight and balance check before each flight.

OK so let’s get started: See the “SET ACF” icon, lower-left on your pad or phone. Go to the LIST tab, on the left.

This is a list of all the airplanes you have saved... only one, labelled “DEFAULT”, when you first get Xavion.

Hit the ADD button to add as many aircraft you like, if you operate Xavion in a wide range of aircraft. For your first go at this, simply click on the DEFAULT aircraft name in the list and back-space on the keyboard to clear the name and

enter the name or tail number for your airplane. When done, go to the SPECS tab. Once there, simply select your various metric or english unit preferences, and the tail number for your airplane, back-spacing over any default data as desired. Remember, touch any button with text or numbers in it so it turns orange, and then use the keyboard to enter data, of course.

Once done with the simple SPECS tab, hop over to the GLIDE tab. There, simply enter each V-speed for your airplane, accurately. Then, once every V-speed is correctly entered, it is time to enter the three vertical speeds that Xavion needs to plan an approach! Go flying, climb to a safe altitude on a smooth day, bring the power to idle, and fly each of the three speeds that Xavion calls for in this screen, entering the power-off descent rate for each.

POWER IDLE, CLEAN GLIDE: Set the plane for a clean glide, power off, and lower the nose to the speed called for. When the speed is steady, note the descent rate and enter it. This will be the 'worst glide' that Xavion will ever expect you to be able to use.

POWER IDLE, BEST GLIDE: Set the plane for a clean glide (prop feathered if you have a variable-pitch prop!), power off, and lower the nose to the speed called for. When the speed is steady, note the descent rate and enter it. This will be the 'best glide' that Xavion will ever expect you to be able to use.

POWER IDLE, LANDING CONFIGURATION: Set the plane for a dirty glide, with flaps and gear down if you have them, power off, and lower the nose to the speed called for. When the speed is steady, note the descent rate and enter it. This will be the glide that Xavion uses on short final approach and flare.

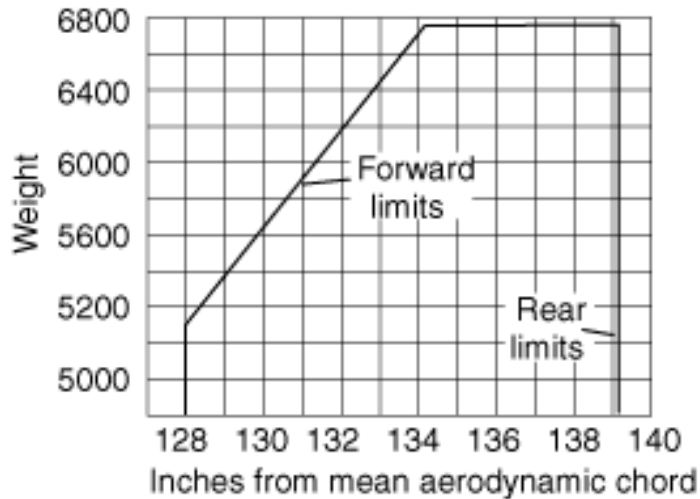
Once you have entered the V-speeds and these three simple descent rates, Xavion will be calibrated for engine-out guidance. No harm in running the tests again, entering more accurate vertical speeds, if you think you can do it better after some practice.

Next go to the CRUISE tab. Here, enter your climb speed, climb rate, and fuel flow for each altitude for the climb. If you fly a Cessna 172, you might consider leaving the values set to 0 for 40,000 or so. As well, note that there are sections LO CRUISE (both a speed and fuel flow!) HI CRUISE (both a speed and fuel flow!) ... enter the lowest and highest cruise speed you ever want to use for those, at each altitude you ever want to fly. No harm in not entering this for safety... this is just for the pre-flight time and fuel estimates, if you want to have that.

Next head to the CG ARM tab. If you would like to quickly check your weight and balance before each flight (WOULD COME IN HANDY FOR A RAMP-CHECK!!) then you will want to enter your weight and balance data here. In this tab simply enter the empty weight max-allowable weight at each station (baggage, passenger-seats, etc) and the moment ARM of the craft when empty, and moment ARM of each baggage compartment or seat. Remember, you are simply entering the LOCATION, or moment ARM, of the empty aircraft CG for the first slot, and the LOCATIONS, or moment ARMS, for the various baggage compartments and passenger seats. Be sure to enter moment arms, not moments. Obviously, all of this information should be available in your operating handbook already... you are just entering it into the iPad so you can run a quick weight and balance check on your iPad in 10 seconds before you go flying.

When done with that, head over to the CG ENV tab. This is the weight and balance ENVELOPE for your airplane. This is simply the allowable range of weight and balance for your plane. Note that you can enter up to 8 corners to define the envelope, but most light planes don't have that many corners in the envelope... just leave 0 for any un-needed slots. A recommended way to enter this data could be:
top slot: Enter lightest weight and most forward CG arm allowable
next slot: Enter highest weight at the most forward CG arm allowable
next slot: Enter gross weight at the most forward CG arm allowable for being at gross weight
next slot: Enter gross weight at the most aft CG arm allowable
next slot: Enter lightest weight at the most aft CG arm allowable
You see? You are just entering the minimum and maximum weights, and forward and aft centers of gravity, to define the allowable weight and balance for your airplane.

Now let's take a look at a real-world case.
You can see the weight and balance envelope for an airplane below.
All planes have something like this:



Clearly there is a forward-CG limit at the left of the chart (128 inches).
 Clearly there is an aft-CG limit at the left of the chart (139 inches).
 Clearly there is a minimum weight limit at the bottom of the chart (4,900 pounds).
 Clearly there is a maximum weight limit at the top of the chart (6,800 pounds).

Now look in your POH.. you have this as well.

The corners of the envelope are simply the corners in the limits shown above.

For the airplane above, you would enter these numbers into Xavion in the CG ENVELOPE page:

- 4900 pounds, 128 inches
- 5150 pounds, 128 inches
- 6775 pounds, 134 inches
- 6775 pounds, 139 inches
- 4900 pounds, 139 inches

See?

They are just the corners of the envelope shown above.
 Each corner is a weight and CG location.
 Enter the appropriate weights and balance limits for your plane now.

PRE-FLIGHT:

OK go to the PRE-FLIGHT menu item. The slow and hard stuff is all done, and now it's time to start using what we will use operationally each time we fly. First is the DATABASE currency tab. Clearly, once you have made your In-App purchase for the data subscription, you simply touch each state or region that you like, and whether you want Sectional Charts, Low Enroute Charts, High Enroute Charts, Approach Plates or the whole lot of them. Xavion will dutifully grab whatever you select, WIFI net access suggested for this one, of course. NOTE: Xavion will run the PFD and MAP quite slow while it's downloading, of course, since it is allocating the CPU and disk access to the chart download.

Next head to the DEFAULT WEATHER tab. Simply enter the wind and barometric pressure of the moment here. If you have WIFI or cell so that wind and METARS can be downloaded, or an ADSb receiver and are in the United States where an ADSb signal is available, then you could skip this step: The internet and ADSb system will quickly over-write your default with the current weather it finds and downloads. BUT, if you have no WIFI, cell signal, or ADSb, then enter the current wind and barometric pressure here, so the engine-out hoop guidance in Xavion is as accurate as possible.

Next head to the TIME AND FUEL tab. IF you have taken the time to enter your climb and cruise data in the aircraft

setup screen mentioned previously, then simply touch the routing button to enter your desired flight route, with spaces between the airport or fix or NAVAID IDs. Once you have simply entered your space-separated departure and arrival airport IDs, you will see the time and fuel required for each ALTITUDE enroute! Looking at this, you can of course quickly choose your best altitude for the flight... and see how much time and fuel to allocate to it! Xavion shows you TWO time and fuel tables: One is optimized to save FUEL, almost certainly using the low-cruise power settings and choosing the altitude that will use the least FUEL on the trip. The second table is optimized for SPEED, showing you the altitude and power to make the trip as QUICKLY as possible. Choose your altitude, see your time enroute, and fuel your airplane accordingly. A quick check of this page BEFORE you go to the airport is great to make your fuel-order, and tell people at the far end of your flight when you will arrive.

Next head over to the WEIGHT BALANCE tab. Clearly, if you have taken the time to enter your weight and balance in the aircraft setup pages, then you will see your weight and balance envelope here, and with a few quick swipes to enter fuel, bag, and passenger weight, you will see your weight and balance for the whole flight in about 10 seconds. Great for a check of weight and balance, especially under the pressure of a ramp-check. Nobody can do that with pen and paper these days.

PLATES:

OK with setup and preflight done, go to PLATES. If you've downloaded plates in the PREFLIGHT section, then just touch the airport ID button in the middle of the screen and enter any airport ID you like. Then choose the airport diagram, hot-spots, take-off minima, SIDs, STARs, plates, or hold-shorts for that airport. NOTE: Once you've chosen a plate, just hit the PLATES menu again to go back to the plate-selection options.

NAVIGATION:

Now it's time to go somewhere. Just touch the the D-> button to get started, entering a fix or destination.

-Add all the fixes you like, of course.

-You can simply enter a fix, then an airway, then a fix, to fly part of an airway. So it is very easy and intuitive to fly complex airways.

-Choose a VFR approach to have Xavion build a very simple 3-D approach to the airport to help at night or in low-vis if you get dis-oriented. (This is for minimum number of turns to entry from your current location if you are dis-oriented... standard traffic-pattern direction and standard entry are NOT considered!)

-Choose an IFR approach to have Xavion build the 3-D instrument approach to the airport... you can just fly through the hoops to fly the instrument approach!

-If you get some long crazy routing from ATC, and then they clear you direct to a fix along the route you've already entered, simply hit the D-> button and enter the fix they cleared you to!!! A SHORTCUT button will appear and hit that to SHORTCUT to the direct fix! Very very easy!

-Enter the altitude in the upper-left... the hoops to fly through will be set to that altitude.

So, the navigation screen is incredibly powerful, and incredibly easy to use... just enter the fixes, destination, and desired approach... where airway fixes and airway names are fair-game for entry!

Let's try an example case:

Go to the NAV menu in Xavion.

Hit the "D->" button.

Enter (one fix per line, hitting "ADD" each time) CAE V53 SPA V605 HMV to run from CAE to HMV along the airways requested.

This is of course the way to fly the type of IFR clearance you typically get in busy airspace.

Now, say you are cleared to GENOD, a fix along V605.

On the very FIRST slot in the Xavion FMS, simply enter GENOD.

The button to right will suddenly be labelled "SHORTCUT to GENOD"!

Hit that button and your route will update to D-> GENOD and then on your way along V605 from there to HMV!

So, this is a very very user-friendly way to enter complex fixes, and shortcut to them when told to by ATC.

PFD-GLIDE:

Now go to the PFD-GLIDE menu. Hit it a number of times: You toggle between GLIDE, PATH, and PROFILE views. GLIDE view auto-zooms to cover your available gliding area. PATH view auto-zooms to cover your planned flight path. PROFILE view just looks at things from the side, of course, which is useful for checking against terrain clearance down-range.

Lower-left on the map, you will see the PLOT WEATHER button.. hit that to see all your weather options. You'll need net and/or ADSb to load up weather, or course.

NEXRAD/lightning: This shows both net and ADSb-based NEXRAD... lo res, hi res, and looping if available.

ICING/FREEZING: This shows icing forecasts and freezing levels, available ADSb only.

WIND/TURBULENCE: This shows current winds aloft (just choose the altitude springing out from it) and turbulence forecast. Turbulence forecast available ADSb only.

CLOUD TOPS: Current cloud tops of course, available ADSb only.

VFR/IFR METARS: All CURRENTLY VFR airports shown in green, marginal VFR in yellow, IFR in red.

VFR/IFR TAFS: All FORECAST VFR airports shown in green, marginal VFR in yellow, IFR in red.

Lower-right on the map you will see the EMER button. Hit that if your engine fails, (and, of course, to practice using the system) and the current emergency hoops will be locked in, so you can follow them down.

Hit the EMER button again to cancel the emergency and return to normal flight.

Touch the little black box at the top of the map to expend or collapse it: Useful airport, weather, and enroute information is available there. The VSI required to destination is extremely accurate: It considers wind at both cruise and arrival altitudes, and expects you to hold a constant INDICATED (not true!) airspeed as you descend into thicker air at lower altitudes, as we typically actually do.

Look up at the PFD: We have a standard synthetic vision system, and angle-of-attack indicator at left, and vertical speed indication at right. If you are on a pad not phone, then there is a FLT DIR button you can hit to engage a flight director for backup flight director guidance as well.

To use the flight director:

Pre-select your altitude with the +/- buttons above the altitude pre-select.

To climb or descend to that altitude at a constant vertical speed, hit the VVI button and hit +/- to choose your vertical speed.

To climb or descend to that altitude at a constant indicated airspeed, hit the FLCH (flight-level-change) button and hit +/- to choose your indicated airspeed.

HDG button to choose heading, and HOOPS upper-right to get flight-director guidance to fly the hoops.

Depending on the avionics you already have in your airplane, entering the heading and altitude into Xavion to remember and display what ATC has asked you to fly could be very useful.

In flight, if you have entered a destination in the NAVIGATION screen, then the hoops will show flight to that destination, complete with any VFR or IFR approaches.

If you have NOT entered any destination, then the hoops will always be showing what Xavion believes is the best-possible power-off glide to an airport.

If you have hit the EMER button, then the hoops will be locked in what Xavion believes is the best-possible power-off glide to an airport, with no further hoops updates: The approach has been locked in by hitting the EMER button!

NOTE: The hoops are solid red on the bottom half, dashed green on the upper half.. be right at the division between them if you want to be right in the middle of the hoops.

NOTE: To practice using the emergency hoops, fly up high, pull power to idle, hit the EMER button, and try following the hoops. NEVER SLOW BELOW BEST-GLIDE SPEED FOR YOUR AIRPLANE!!! If you are below the center of the hoops, go to best glide speed, be sure the plane is as clean as you can get it, and feather the prop if you have a variable-pitch prop. This will get you back to the center of the hoops if possible. Once you get to the center of the hoops, lower the nose to stay in the center of the hoops. Safest option is to miss the approach with power once you have verified that you can fly the hoops, though I fly the power-off landing to touch-down every time for a full test of

the system.

NOTE: If you go to best-glide, and still fall below the hoops, then it is clear that you entered your vertical speeds optimistically in the calibration page! Re-fly your calibration, being sure to enter your power-off vertical speeds properly.

NOTE: Again, NEVER SLOW BELOW BEST-GLIDE SPEED FOR YOUR AIRPLANE!!! If you are below the hoops, your best option is to stay AT best glide to make it to the center of the hoops, cutting corners if needed in any turns. I have seen people go BELOW best glide speed to try to climb up to the hoops! That will never work. Stay at or above best glide speed for safety and to maximize your glide!

NOTE: Xavion shows airspace in 3-D for the US, making it very easy to avoid airspace, and confirm when you really are flying OVER it, not IN it!

NOTE: Xavion shows ESTIMATED INDICATED AIRSPEED based on ground-speed, wind, and altitude! Many people have reported it as a bug that, in the AIRSPEED indicator, Xavion does not show ground-speed like the cheap, low-quality EFBs... never noticing that Xavion is mysteriously matching their airspeed indicator almost perfectly! We fly airplanes based on indicated airspeed, not ground speed! So Xavion takes your GPS-derived ground speed, applies wind-correction based on default, internet, or ADSb-defined winds, and applies indicated correction based on altitude, temperature, and barometric pressure based on internet or ADSb-reported weather, to give you a very accurate estimated indicated airspeed. That's what we use to fly an airplane, not ground-speed like the other Apps display.

NOTES:

This just lists the flight-plan sequence for air-filing of a flight-plan... I can never remember all the items to included when filing. Scratch-pad for clearances and other notes.

PREFS:

Configure Xavion here.

You can set landscape or portrait modes.

PFD, MAP, or both.

Xavion chart or Sectional or IFR Enroutes.

Map orientation and 3-D airspace on or OFF.

Set brightness and volume. When your brightness is less than 50%, the IFR charts and plates automatically go into DARK MODE, inverting their colors to be almost all black for night vision.

Hit THIS IS LEVEL when flying level (and not accelerating!) to calibrate your gyros and ADSb receiver if you have it.

DIAGNOSTICS:

This page simply shows what data Xavion is collecting, and how your ADSb receiver battery and iPhone or iPad battery is doing.

You can also see the weather at your current location: Xavion estimates your wind based on winds-aloft in flight, and interpolates to METAR winds entering the airport traffic area.

You can see all that in the diagnostics page.

LOGBOOK:

Finally, post-flight, go to LOGBOOK menu item.

You can see a list of each flight.. just touch any one of them!

When you do, the synthetic vision system will come up, with a little jog-slider at the bottom to replay your entire

flight!

Nothing could be easier.

AND, IF you have a copy of X-Plane running on a desktop or laptop PC on the same WIFI as your iPad, then in X-Plane go to the SETTINGS menu, NETWORK tab, and choose this iPhone or iPad as the copy of Xavion for X-Plane to drive. Once you've done that, the flight you just flew should appear on X-Plane, perfectly matching the replay you are viewing on your phone or pad. This is the ultimate post-flight de-brief.

At the bottom of the screen, see take-off distance that Xavion estimates for you at your current weight and altitude, which Xavion estimates based on previous take-offs that it has silently observed.

Based on this, any time you are taking off, Xavion will warn if it thinks there is not adequate runway in front of you. This warning would have saved many accidents in the past....

CONCLUSION:

So there you have it: From setup, to pre-flight to in-flight navigation and backup, to post-flight review, Xavion works through the entire flight process with you, as you simply work through the menus from left to right!

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POST-SCRIPT: SOME THINGS THAT HAPPENED TO ME TO MAKE ME CREATE XAVION

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Why Xavion always has a power-off option ready:

I as once flying my Lancair (N844X), when a bleed-air line came loose inside the cowl at FL280, disabling cabin pressurization and causing engine compressor stalls all at the same time. ATC called out the NEAREST field (a dinky little dirt ranch right under me, 5 miles below) but Xavion clearly showed that I could easily make a major airport with 10,000 foot runways about 15 miles father away, showing me hoops right to the runway threshold! I denied the controllers idea and took the big airport presented to me by Xavion. This allowed an easy landing on a huge runway, and maintenance facilities as well. Having Xavion allowed me to, without question, to have a much safer and more convenient outcome.

Why Xavion shows glide options continuously... even if you are too low to make it:

Flying from South Carolina up to New York with my family, New York Center took us out over the ocean and proceeded to assign as an altitude of around 4,000 ft. Flying at 6,000 ft, I could see in Xavion that we were just BAAAAAARELY in the glide-hoops to make it to an airport, so I easily refused their clearance, knowing instantly and with certainty that it would put me out of gliding range of the shore. The controller instantly back-tracked and gave me 8,000 instead. Having Xavion allowed me to, without question, to keep my family safe from the risk of a winter-time ditching in the ocean.

Why Xavion tracks wake turbulence:

I once hit the wake turbulence of an MD-80 **SEVERAL MINUTES** after it passed by in front of me! The impact was violent enough that my neck was sprained from slamming into the roof of my cockpit, despite my seatbelt being on, and me being in my Lancair Evolution, not exactly a paper-weight airplane. Two hours after this happened, I started the wake-turbulence tracking in Xavion, my neck still hurting from the impact. The way it works is astoundingly simple: Every airplane showing on ADS-B drops a little "wake turbulence egg" every few seconds or so at the aircraft location. The "wake turbulence eggs" descend at 500 feet per minute, drift with the wind, and are clearly drawn as little rotating cyclones in Xavion. This makes it easy to avoid that wake turbulence of other airplanes at basically zero cost. Looking at how easy it is to do this, it is rather astounding to me that Xavion is the only avionics in the world that actually shows this. Some research projects have used rare, expensive, on-board doppler-radar to try to detect wake turbulence. Well, now Xavion just uses your ADS-B traffic reports and the ADS-B-reported wind.

Why Xavion goes to the trouble to find GPS ground speed, wind speed, altitude, and air density to estimate Indicated Air Speed:

Xavion looks at the GROUND-SPEED of the airplane from GPS, then subtracts out the WINDS from ADS-B weather

reports to get the TRUE AIRSPEED if your airplane. Xavion then finds the local air DENSITY by looking at your GPS-derived altitude and finding the standard air density for that altitude, and modifies that based on the ADS-B weather reported temperature and barometric pressure. Once the local air density is precisely known by Xavion, it easily converts from true airspeed to indicated airspeed and THAT is what Xavion shows! When Xavion first came out, I got many emails per day from people asking what was wrong with Xavion, because it always showed their indicated airspeed (with no pitot tube!) and not their ground-speed like all the other lazy GPS and EFB Apps. Of course, indicated airspeed is exactly what we WANT Xavion to show, because THAT is what lets us honor or flap and gear speeds, and fly our approach speeds! One day, I took off after a weekend at the beach and noticed, climbing up away from the runway, that my airspeed indicator was indicating ZERO! (For take-off, I watch the all-important engine ITT and I rotate to an angle of attack, not an airspeed, and let the plane fly off when ready, since planes stall at a given angle of attack, not an airspeed). To add to the fun, the landing gear refused to retract, since the airplane was convinced it was still on the ground with zero airspeed showing on the Garmins. No problem! With estimated INDICATED airspeed showing on Xavion, I was easily able to observe all flap and gear limit speeds, and fly an approach at the desired INDICATED airspeed, and no risk was added to the flight... despite a clogged pitot tube, which has caused multiple crashes in history!

Why Xavion is currently IOS-only:

Global airports and USA charts and maps are available online within the low annual prices quoted above, and Apple obsesses over their interface and distribution relentlessly, while we have found from experience that Google has done a poor job with their programming interface. These things have driven me to deploy Xavion on iOS with global airport coverage, with USA charts and plates.