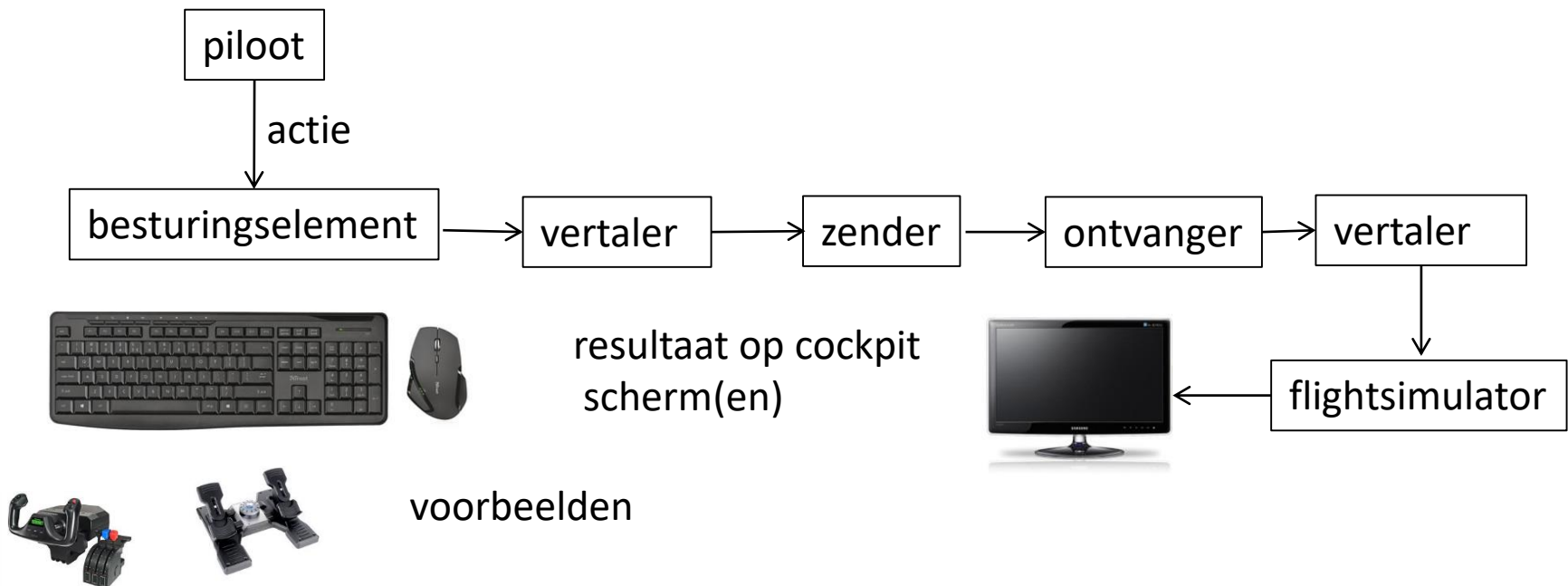


Panelinstrumenten met extra hard- en software

- een reis langs de opties die ik bekeken en/of gebruikt heb-

Tom Schulte

Schema van invoer en uitvoer voor flightsim (1)



- In deze opstelling: eenrichtingsverkeer en resultaat alleen op cockpit scherm
- **Probleem al vaak:** niet genoeg “echte” knoppen/switches/rotaries etc (keyboard met meerdere simultane toetsindrukkingen of muisklicks is ook niet alles !)

Voorbeelden hardware voor knoppen/switches/rotaries via USB

Universal USB Interface

www.leobodnar.com/shop/index.php?main_page=index&cPath=94

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- GPS Antennas
- Fast pulse generator
- Transient limiter
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Universal USB Interface Boards

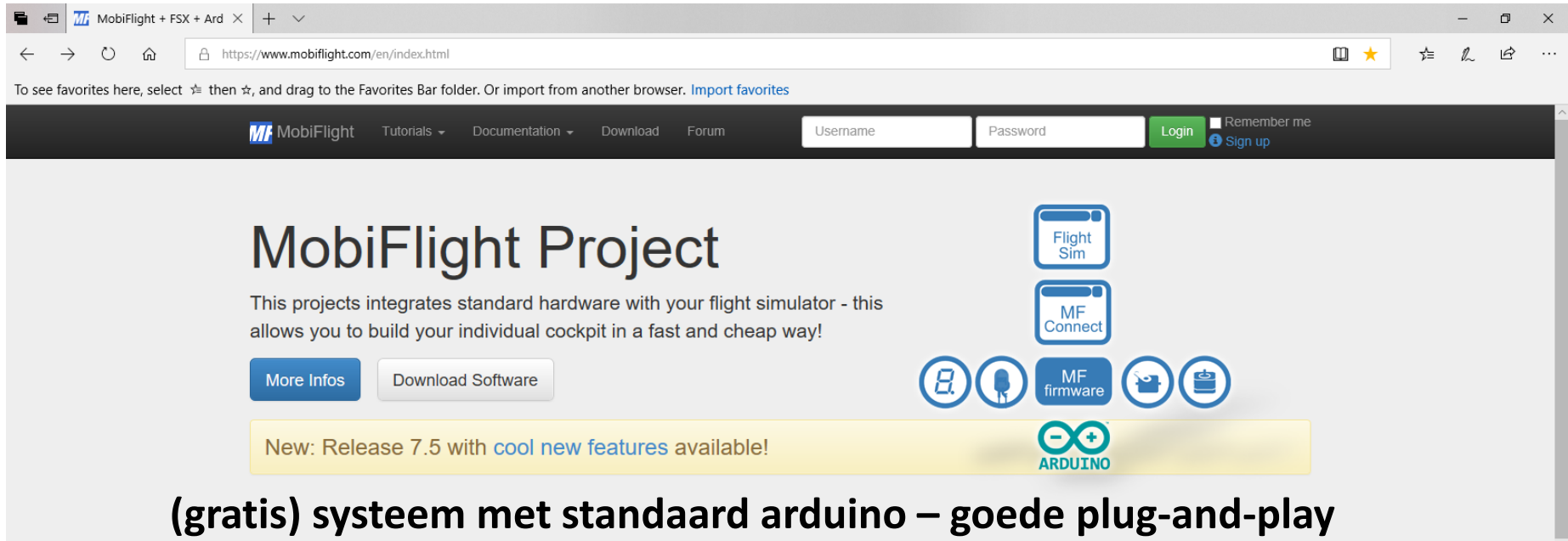
Leo Bodnar kaartjes

Displaying 1 to 11 (of 11 products)

Product Image	Price-	Item Name
	49.99GBP More Info	BU0836X 12-Bit Joystick Board A USB joystick interface board with simple push in wire connectors to connect buttons, potentiometers, sensors, rotary encoders and switches to a PCClick here for more information.
	24.99GBP More Info	BU0836A 12-Bit Joystick Controller A small USB joystick interface board with pin header connectors to connect buttons, potentiometers, sensors, rotary encoders and switches to a PC orClick here for more information.
	19.99GBP More Info	BU0836A-NC 12-Bit Joystick Controller No Connectors Low profile version of the BU0836A. Exactly the same features but without the pin headers or USB socket.Solder directly to the board or add you ownClick here for more information.
	34.99GBP More Info	BBI-64 Button Box Interface USB buttons, switches and encoders interface board with simple connections. Works on Windows, Mac and Linux. Build your own gaming device - flightClick here for more information.
	29.99GBP More Info	BBI-32 Button Box Interface - With Connectors A USB joystick interface board with simple push in wire connectors to connect buttons, rotary encoders and switches to a PC or Mac. Build your ownClick here for more information.
	19.99GBP More Info	BBI-32 Button Box Interface - No Connectors A low profile version of the regular BBI-32. Exactly the same features but without the push in terminals or USB connector allowing you to solder yourClick here for more information.
	26.99GBP More Info	BU0836-LC Load Cell Joystick Controller A small USB joystick interface board with pin header connectors to connect buttons, potentiometers, sensors, rotary encoders and switches to a PC orClick here for more information.
	24.99GBP More Info	Load Cell Interface LC-USB 16-bit Very high resolution 16-bit load cell interface. This tiny USB interface has been specifically designed for load cell pedals used in racingClick here for more information.
	9.99GBP	BU0836A Break out Matrix board

Toekennen functies FSX/P3D zoals bij joystick via FS of FSUIPC

Voorbeelden hardware voor knoppen/switches/rotaries via USB



The screenshot shows the homepage of the MobiFlight Project website. The browser's address bar displays 'https://www.mobiflight.com/en/index.html'. The website has a dark header with navigation links: 'MobiFlight', 'Tutorials', 'Documentation', 'Download', and 'Forum'. There are also login fields for 'Username' and 'Password', a 'Login' button, and links for 'Remember me' and 'Sign up'. The main content area features the 'MobiFlight Project' title, a description of the project, and buttons for 'More Infos' and 'Download Software'. A yellow banner announces 'New: Release 7.5 with cool new features available!'. To the right, there are icons for 'Flight Sim', 'MF Connect', 'MF firmware', and 'ARDUINO'. Below this, the text '(gratis) systeem met standaard arduino – goede plug-and-play' is displayed.

MobiFlight Project

This projects integrates standard hardware with your flight simulator - this allows you to build your individual cockpit in a fast and cheap way!

[More Infos](#) [Download Software](#)

New: Release 7.5 with cool new features available!

(gratis) systeem met standaard arduino – goede plug-and-play

Easy

With MobiFlight Connector it's easy to configure the MobiFlight Modules without a single line of script or code - only mouse clicks.

Tips and documentation can be found at

[Documentation](#)

oder

[Tutorials](#)

Cheap

Since MobiFlight Modules are based on common available standardized hardware - you can save a lot of money! There are available solutions for LEDs, 7-Segment-Displays and Servos etc.

Check our supported Hardware for Inputs and Outputs

[Hardware overview](#)

Flexible

These are the simulators that we support

[P3D](#) [FSX](#) [FS9](#)

[X-Plane 11](#) [X-Plane 10](#) [X-Plane 9](#)

This hardware is supported

[Arduino Mega](#) [Arduino Pro Micro](#)

Support

The [help by the community](#) or exclusively by the MobiFlight Developer ensures that you get to your goal: Your very own home cockpit!

Help and feedback regarding Mobiflight is provided at our

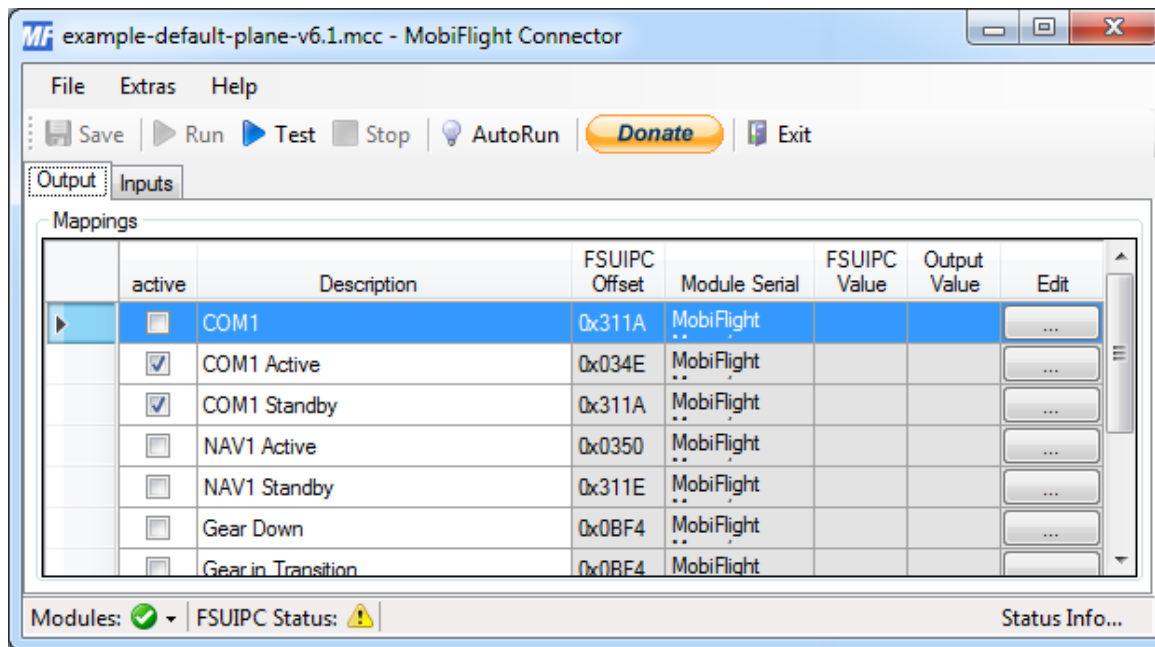
[Forum](#)

News

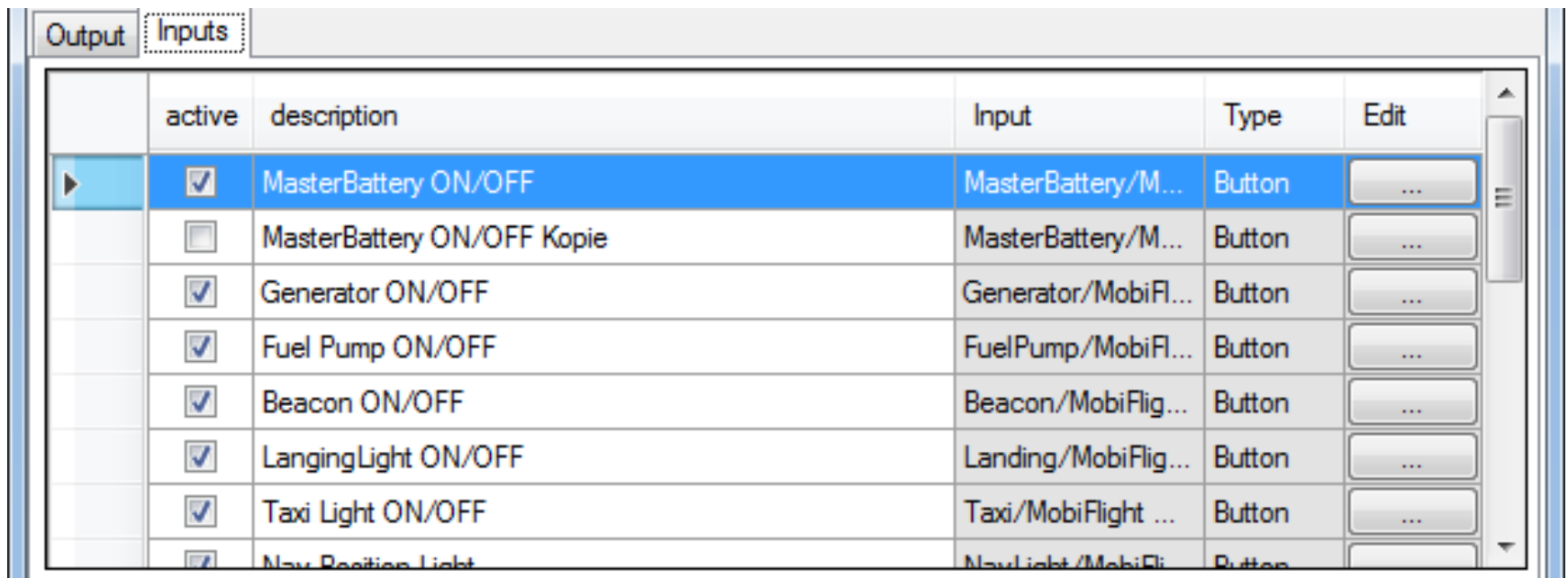
Happy New Year!!! - Release 7.5.1

Feedback + Comments

I'll keep messing about and learning but just wanted to take the opportunity to say thank you for all the hard work so far. I'm looking forward to further



Toekennen functies FSX/P3D via MobiFlight connector



Meer flexibiliteit om zaken zelf te regelen: onvolprezen FSUIPC

The Official Peter Dowson

+

▼

←

→

↺

🏠

https://www.schiratti.com/dowson.html

🔍

📖

☆

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schiratti.com

peter dowson

project magenta

cockpit

aviation humour

enrico schiratti

Last Updated: November 08, 2016

[Peter Dowson's Support Forum](#) [Please use this to contact Peter]

I had been searching for a link to Peter's WideFS following a request, and I had some trouble finding the newest postable version of his software. Ok, I could have easily found it on Compuserve, but it should be easily found on the Internet as well. We use Peter's programs and documentation quite extensively with Project Magenta, it was and is most valuable to us.

FSX FSX-SE Prepar3D Versions releases to date	
FSUIPC5 5.151 for Prepar3D Version 4	Full release of FSUIPC 5 (incorporating WideFS 7) for use with Prepar3D 64-bit Version 4 February 27th 2019 (3.3 MB) WideServer7 is built into FSUIPC5, you will need the WideClient from the WideFS link below.
FSUIPC4 4.971	Full release of FSUIPC 4 (incorporating WideFS 7) for use with FSX, FSX-SE and Prepar3D 1.4-3.4 August 16th 2017 (3.3 MB) WideServer7 is built into FSUIPC4, you will need the WideClient from the WideFS link below. Please Note: This version works with versions 1.4-3.4 of Prepar3D, but they will not be supported in the future.
WideFS 6.999z1	The WideClient.exe included in this zip is to be used with the WideServer7 module which is included with FSUIPC4 from now on November 8th 2016 (1 MB)

To register/buy FSUIPC or WideFS for FSX, FSX-SE, ESP and Prepar3D please go to **simMarket**:


FSUIPC5 for Prepar3D


FSUIPC4 for FSX and P3D


WideFS for FSX and P3D

hosted by  project magenta

Important information and download troubleshooting FAQ at the bottom of the page.

To register/buy FSUIPC or WideFS for FS2004 please go to **simMarket**:




Peter Dowson's FS Modules


FSUIPC


GPSout


simMarket


WideFS


Microsoft
Most Valuable
Professional

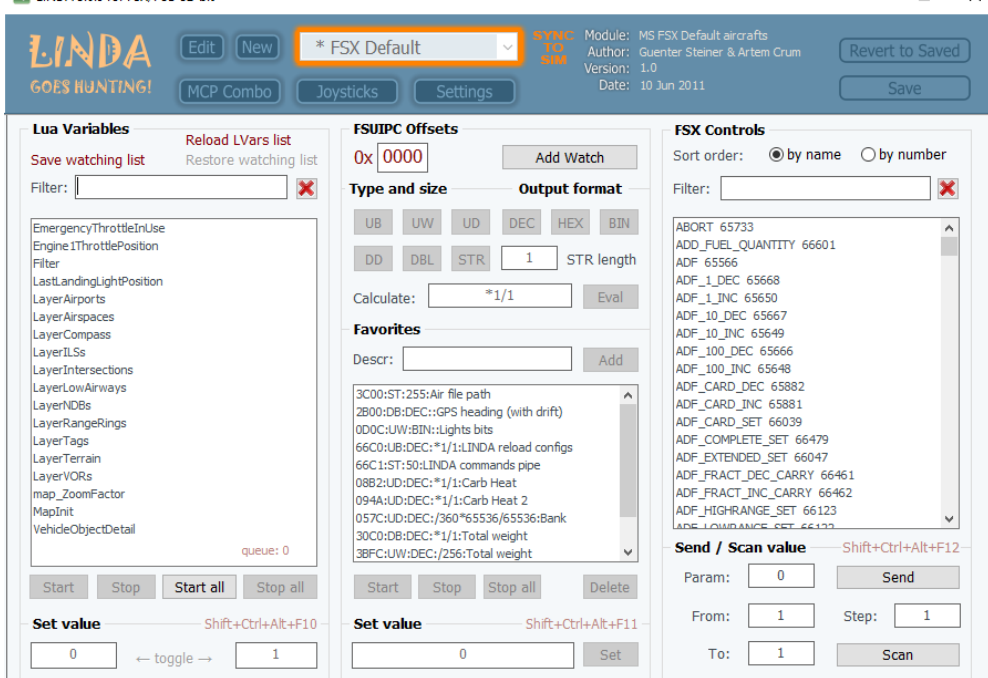
Alleen software, moet wel zelf hardware organiseren !


Piracy Reporting Form
simFlight

Linda programma maakt assignments via FSUIPC eenvoudiger

Alleen software, moet wel zelf hardware organiseren !

LINDA 3.0.9 for FSX/P3D 32-bit



Vaak gebruikt voor 3rd party producten zoals VR-insight MCP combo. Modules voor bijv. PMDG op forums

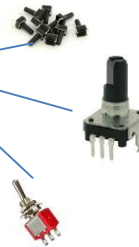
Voorbeeld FSUIPC met hardware: in mijn 2018 presentatie uitgelegd



ChipKitMax32: programmeerbaar via IDE op PC (USB → serial poort)
83 I/O pinnen (Arduino-achtig kaartje)

i2c

MCP23017's



programmeerbare I/O chips:
16 I/O pinnen

<https://store.digilentinc.com>

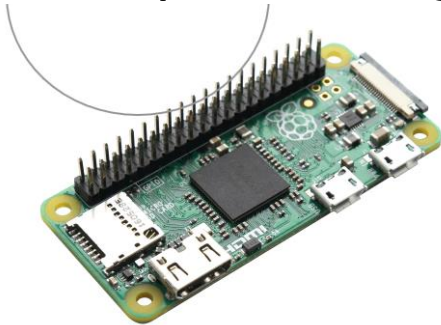
MCP's (max 8) worden in 'matrix' configuratie door ChipKit uitgelezen →
8*8=64 mogelijkheden per MCP: drukknoppen, schakelaars, rotaries

ChipKit geeft uitgelezen waarden door aan lua module FSUIPC via USB/com poort
FSUIPC/lua script vertaalt waarden naar acties:

- directe FSX controls of
- virtuele joystick buttons die in FSUIPC4.ini file assignment krijgen

Niet zo eenvoudig om kaartje rechtstreeks als joystick/HID te presenteren aan PC

Simpeler mogelijkheid ontdekt met Raspberry Pi zero



- Goedkoop : kaartje kost +/- 15 euro
- Linux computer met programmeerbare I/O pinnen
- Heeft net als Arduino i2c (of SPI) aansluitingen
- ***Zeer eenvoudig om het te laten fungeren als USB joystick***
- ***Hierdoor ook te gebruiken samen met Linda***

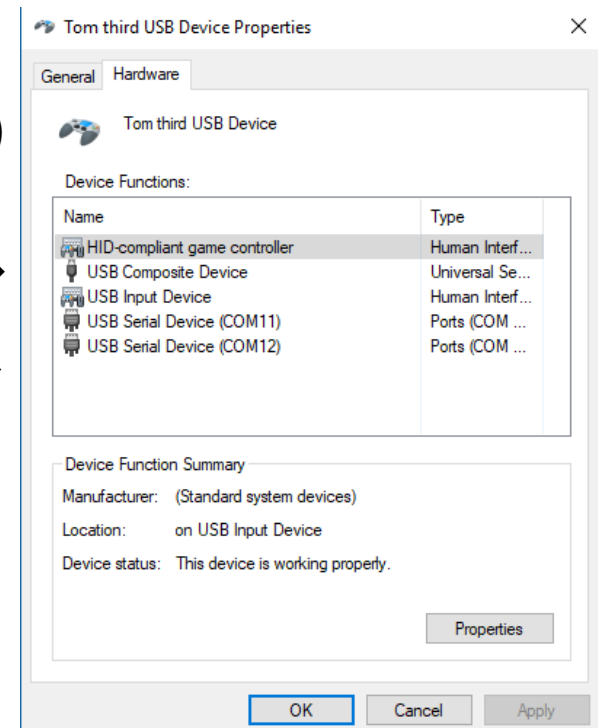


Joystick met 255 buttons ! (x3 door shift mogelijkheden)

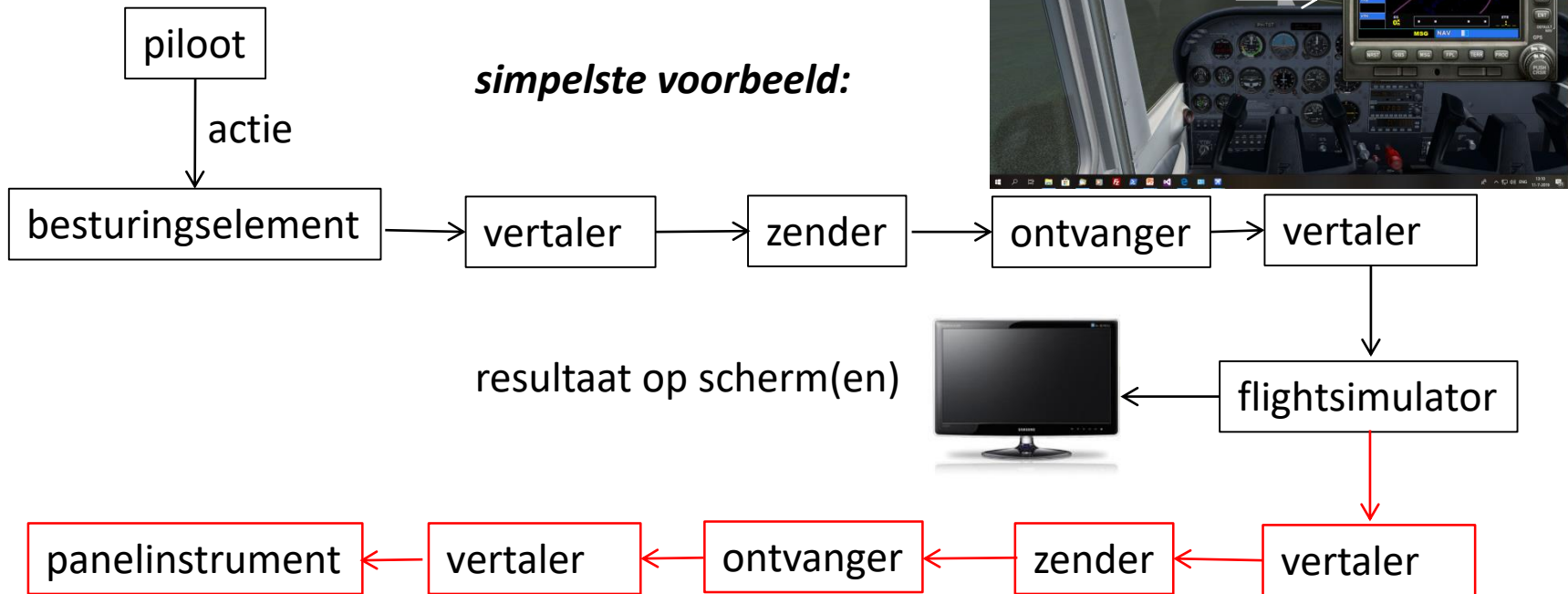
Com poort om data te sturen (bijv naar FSUIPC lua module) →

Com poort om in te loggen op linux OS →

Inloggen op linux OS kan ook via WiFi



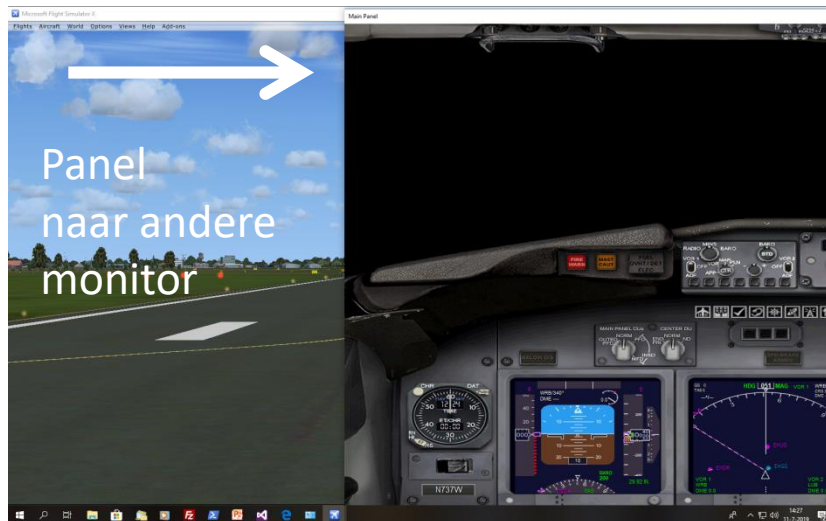
Schema van invoer en uitvoer voor flightsim (2)



- In deze opstelling: eenrichtingsverkeer en resultaat alleen op cockpit scherm
- **Met panelinstrumenten wil je resultaat ook op andere manieren terugkrijgen**

Panelinstrumenten

- Gedeelte van panel wel mogelijk, b.v.:
- Heel panel vaak niet/moeilijk:



hier: veel zwart. Is wel te
“repareren” maar veel werk
Als je slaagt: alleen
invoer via mouse (of touch)
Dus “knoppen” hardware nodig



Saitek →



Voorbeelden van kant-en-klare oplossingen

Extra gauges
voor Saitek

www.fipgauges.com

www.fipgauges.com/downloads.php

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- 2019 (4)
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£4.99

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FIPGAUGES.COM Downloads and Demos:
(Click gauge image to download it)

Demo gauges are limited to 6 minutes of operation and then SPAD.neXt will "time-out" the gauge. During operation our logo is present when in the air (not while on the ground).

While some of our demos are available within SPAD.neXt these are more recent versions and more functional than those in SPAD.neXt.

Click to download free fipgauges global variables settings gauge.

Panel Lights Off On
Colour 1 - 4
OH Voltage 23V
OH Bus Main Avionics
Reflections Off On
↓ Next Page

Click any of the gauges below to download the demo version of that gauge.

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1. Altimeter
2. Airspeed (21 Speed Ranges)
3. HSI Multifunction
4. Attitude
5. Vertical Speed Indicator (VSI)
6. ILS - VOR1
7. RPM
8. Heading - Compass
9. Flight Information Box (6 Gauge Pages)
10. Turn Co-Ordinator

Specials

Radio Altimeter
£4.99
£4.79

Reviews

I have been using 4 setups of this gauge on the Lancaster, B ..
★★★★★

Currencies
Pounds Sterling

Windows FIP Device Driver and Install Instructions

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Voorbeelden van kant-en-klare oplossingen

en/of
Gauges op
monitor

www.fipgauges.com

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www.fipgauges.com/vfp.php

WHAT'S REQUIRED WHICH SIMULATORS HOME PAGE SUPPORTED AIRCRAFT

Virtual FIPs

Dont have FIP hardware? no problem! you can display single or multiple gauges on monitors using SPAD.neXt's Virtual FIPs. SPAD.neXt Virtual FIP's requires an additional subscription. For more information goto www.spadnext.com or check out the demo video below.

Gauges can be positioned anywhere on the screen and run initially at the default size of 320x240 pixels. Gauges can be resized (Resolution quality remains at 320x240 pixels digital zoom). Virtual FIPs can be run on the same PC as the simulator and on a second PC using the SPAD.neXt vFIP client (which is currently very buggy, please contact SPAD.neXt for any vFIP client issues).

Even though you need an additional subscription its a more cost effective solution than buying lots of individual FIPs.

Our most recent youtube gauge video's are actually a screen capture of the gauges running as a Virtual FIP.

Virtual gauges can run on your existing monitors with the SPAD.neXt vFIP addn.

Three gauges running in Virtual FIPs on the same monitor as the simulator

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4. Attitude
5. Vertical Speed Indicator (VSI)
6. ILS - VOR1
7. RPM
8. Heading - Compass
9. Flight Information Box (6 Gauge Pages)
10. Turn Co-Ordinator

Specials

Panel Displays £4.99 £3.99

Reviews

I think this gauge was the last I purchased so far and let m .. ★★★★★

Currencies

Pounds Sterling

SPAD.neXt: virtual F...

Voorbeelden van kant-en-klare oplossingen

www.fipgauges.com VRinsight - MCP Combo

https://www.aerosoft.com/en/hardware/flight-simulation/instruments/502/vrinsight-mcp-combo-boeing-type-mcp-combo-ii

To see favorites here, select ☆ then ☆, and drag to the Favorites Bar folder. Or import from another browser. [Import favorites](#)

Home Flight Simulation Train Simulation Bus/Truck Police/Rescue Simulation Simulation Games Hardware **Sale %**

< Overview Hardware > Flight Simulation > Instruments

VRinsight - MCP Combo Boeing Type (MCP Combo II)



Shipping item

€489.99 *
Price incl. 19% VAT plus shipping costs

● Ready to ship today,
Delivery time appr. 1-3 workdays

1

Remember

Article number: AS12069
Publisher: VRinsight

Description

Product information "VRinsight - MCP Combo Boeing Type (MCP Combo II)"
MCP Combo II - Boeing MCP features Boeing aircraft panel with full control complement: Default Boeing aircraft and add-on aircrafts (J level D's B767-300, PMDG's

This website uses cookies to ensure you get the best experience on our website. Learn more in our [data protection declaration](#).

Got it!

ENG 21:56 13-4-2019

Software voor instrumenten op andere monitoren en/of computers

Panel Builder

https://simplugins.com/html/panel_builder.html

To see favorites here, select ☆ then ☆, and drag to the Favorites Bar folder. Or import from another browser. [Import favorites](#)

simPlugins Avionics and Interfaces for Flight Simulation



Updated April 2013
Review Score 10/10

Nov/Dec 2012 Issue

Panel Builder

[What is Panel Builder?](#)
[Version History](#)
[Trial Versions](#)

Panel Builder comes in 3 base different versions, Analog, EFIS or Combo and 2 special versions for the Dodosim 206 Add-On and for Condor.

- Uitsluitend weergave instrumenten
- Input via muis of touchscreen
- Hardware input, dus knoppen etc. , nog zelf regelen via eerder geschetste methodes

Panel Builder

Avionics for Flight Simulation

EFIS PanelBuilder

Avionics for Flight Simulation

PanelBuilder Combo

Avionics for Flight Simulation

PanelBuilder

CONDOR

Panel van mijn simulator in 2018 presentatie



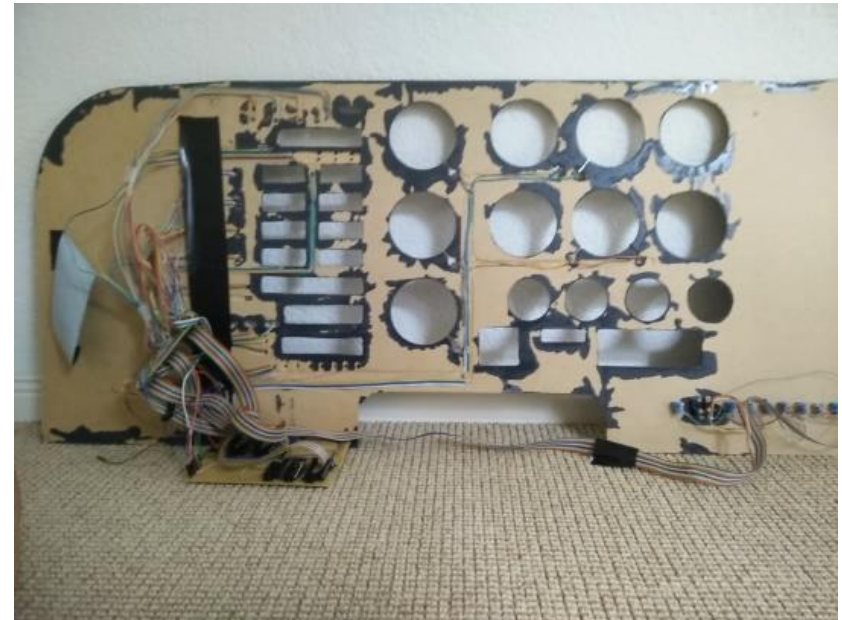
Mijn 2019 benadering van panel

- Plaat voor monitor geeft “realistische” cockpit met knoppen etc. op juiste plaats.

Echter:

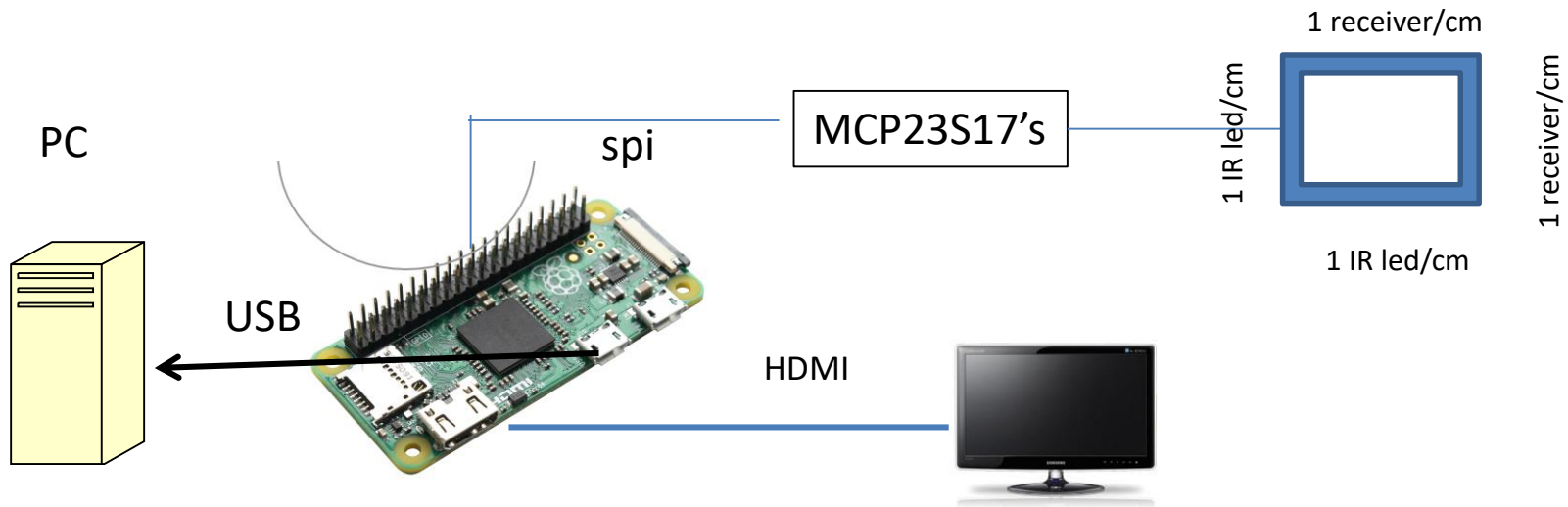
- Voor ieder nieuw vliegtuig moet een nieuwe constructie gemaakt worden
Redelijk veel werk:

- Terug naar panel software op monitor met input via touchscreen
- Vorig jaar al eerdere versie genoemd.
- Nu voorkeur voor Sim Innovations panel programs



Zelfbouw touch-screen (versie 2)

- rand rondom 27" monitor met 60 (h) / 34 (v) 5 mm IR leds en receivers
- aansturing en interpretatie via c++ programma op Raspberry-Pi Zero
- Programma levert x,y voor muis click
- Raspberry-Pi Zero presenteert zich hier als touch screen aan PC



Uiteraard kun je ook kant-en-klare touchmonitor of frame kopen → \$\$\$\$



Air Manager

- **Air manager** voor creëren/samenstellen panel en tonen op FS computer monitoren
- **Air player** voor tonen op andere computer(s): Windows PC, Apple IOS, Android, Raspberry Pi-3



The best instrument panel tool on the market.

36 euro Linux computer

Air Manager is an application which allows you to create your own 2D flight simulator panels. You can run it on the same computer as your flight simulator, or on a separate computer.

It will automatically connect to your X-plane, FSX or Prepar3d flight simulator on your local network.

Choose your panel from one of the included 20 pre-made panels, or create your own from a library of more than 620 free instruments.

Is the instrument you are looking for not in our library? No problem, you can create your own by using our simple API in combination with the Lua scripting language.

[Read more...](#)



Air manager 60 euro

Air player 30 euro

Waarom voorkeur voor Sim Innovations panels

- Relatief veel instrumenten beschikbaar
- Te gebruiken voor FSX, Prepar3D en X-plane-11
- Opbouw instrumenten transparant door lua scripts te bekijken
- Instrumenten zijn zelf te construeren/veranderen via lua scripts
- Hardware kan aan instrumenten gekoppeld worden: in scripts kunnen hardware knoppen, switches, rotaries etc. direct aangestuurd worden.
Hardware: standaard Arduino kaartjes met plug-and-play interface
- Instrumenten kunnen door gebruikers centraal worden aangeleverd
- Als instrument niet beschikbaar is kunnen via “door-klik” mechanisme oorspronkelijke (undocked) simulatie instrumenten worden geïntegreerd
- Draaien Air Player op Raspberry Pi aantrekkelijk (ontlast FS PC)
- Zeer handige optie voor rotaries: knobster
- Volop in ontwikkeling –vele nieuwe opties in voorbereiding
- *Observatie*: bias van gebruikers ligt bij X-plane 11 (niet helemaal ten onrechte, heeft meer complete API, zeer realistisch, nog volop in ontwikkeling)

[https://siminnovations.com/wiki/index.php?](https://siminnovations.com/wiki/index.php?title=Air_Manager_Instrument_Logic_API)
[title=Air_Manager_Instrument_Logic_API](https://siminnovations.com/wiki/index.php?title=Air_Manager_Instrument_Logic_API)

Contents [hide]

- 1 X-plane
- 2 Flight Simulator X or Prepar3D
- 3 Aerofly FS2
- 4 Inter-instrument communication
- 5 External data source (Professional version only!)
- 6 Node
- 7 Image
- 8 Text
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 - 26.6 Digital input
 - 26.7 Digital output
 - 26.8 Analog input
 - 26.9 Analog output
 - 26.10 PWM output
 - 26.11 Character display
 - 26.12 Button array
 - 26.13 Stepper motor
 - 26.14 Message port

Voorbeeld Instrumenten tab

Air Manager - Home Use 3.6



Air Manager Help

Panels Online (624) Create/Edit Device Settings

☐ Paid premium panels

☒ Free community instruments

All (624)

ATR 72-500 (22)

Air Tractor AT-802 (7)

Airbus A320 (1)

Airbus A320 JarDesign (4)

Beechcraft 1900D (21)

Beechcraft B58 (35)

Beechcraft B60 (2)

Beechcraft C90 (17)

Beechcraft Duke Turbine (25)

Beechcraft King Air 200 (13)

Beechcraft King Air 300 (12)

Beechcraft Skipper (1)

Bell 206 (10)

Bell 407 (10)

Bell 412EP (20)

Boeing 727 (13)

Boeing 737-800X (11)

Boeing 737NG (12)

Bombardier (6)

Bombardier Challenger 300 (4)

Cessna 152 (9)

Cessna 172 (28)

Cessna 182 (6)

Cessna 208 (2)

Cessna 210 (1)

Cessna 310R (2)

Cessna 402C (9)

Challenger 300 (2)

Cirrus SF50 (9)

Cirrus SR20 (1)

Cirrus SR22 (1)

Convair 580 (19)

DHC-2 Beaver (3)

Daher-Socata TBM 900 (6)

Dornier Do 288 (6)

Enter a string here to filter instruments or panels. e.g.: 'Baron' or 'Altimeter'



All



Airspeed indicator

ATR 72-500

Author: flyatr

Delete

More information



Altimeter

ATR 72-500

Author: flyatr

Delete

More information



Clock

ATR 72-500

Author: flyatr

Delete

More information



EADI (Attitude display)

ATR 72-500

Author: flyatr

Delete

More information



EHSI (Horizontal situation indicator)

ATR 72-500

Author: flyatr

Delete

More information



Engine 1 Fuel Flow

ATR 72-500

Author: jml79

Delete

Voorbeeld Panels tab

Air Manager Help

Panels Online (624) Create/Edit Device Settings

Instruments Panel Remove Show Hide Resize

Actions

- Demo panel
- Cessna 172
- Beechcraft Baron 58
- B737-800MAX
- ATR 72-500 - Primary panel
- Cirrus Vision SF50
- ATR 72-500 - Engine panel
- Cirrus Vision SF50 CLONE
- Cessna 172 try
- Cessna_eigen
- Cessna_try

Layout



General settings

Name:

Cirrus Vision SF50

Start mode

- ☒ Start the panel manually

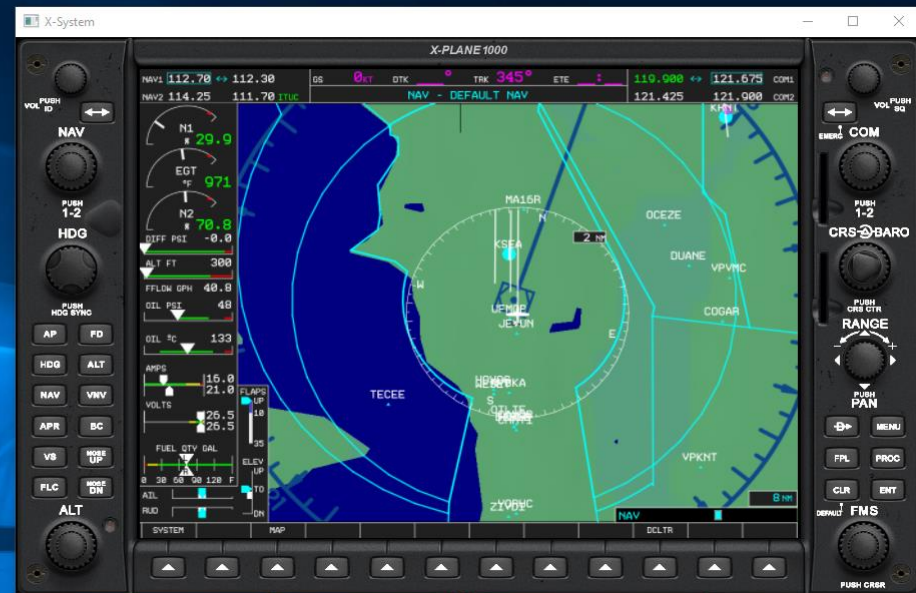
Voorbeeld panel voor C-172



Voorbeeld panel voor Beech Baron

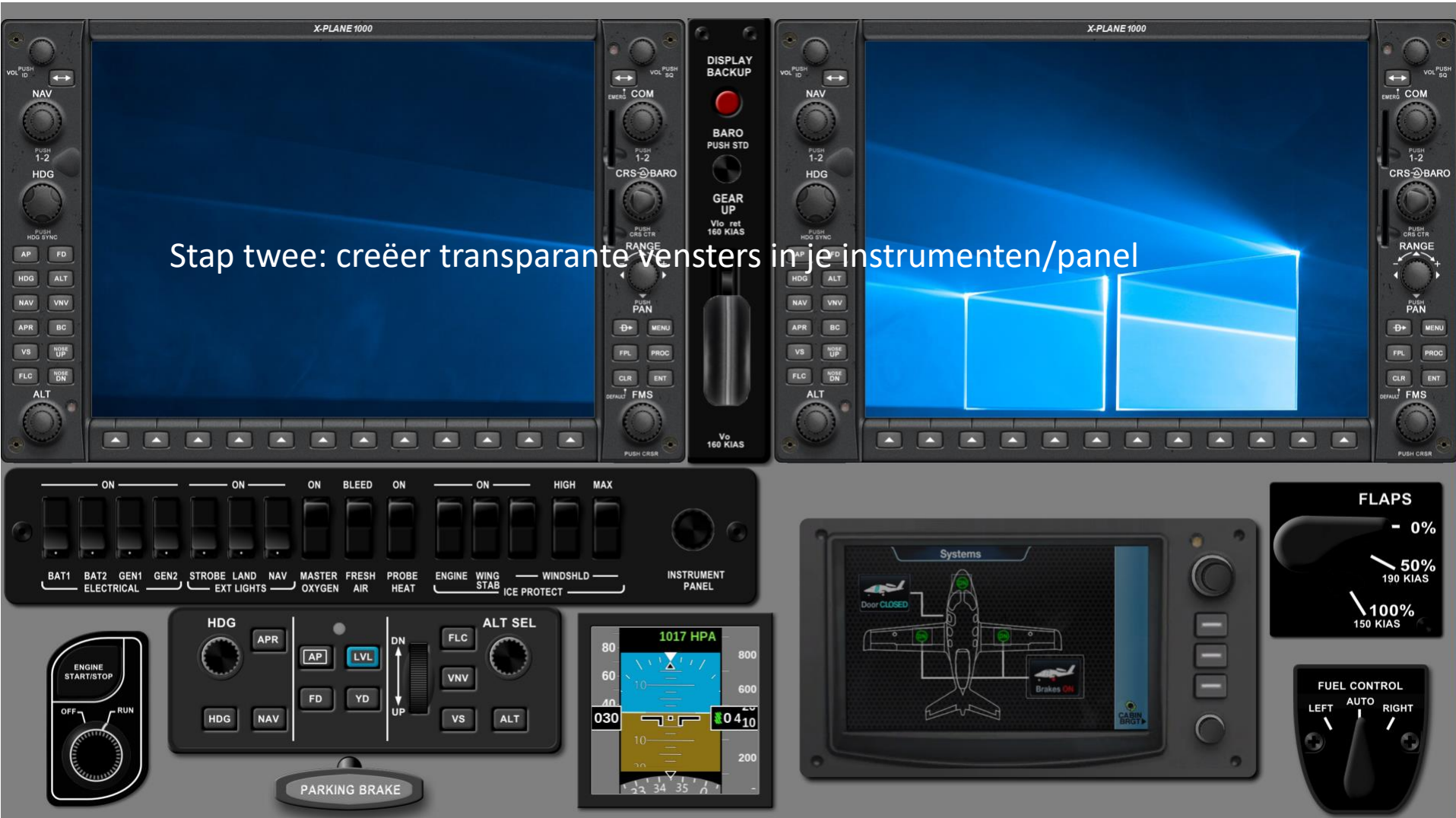


Soms zijn ingewikkelde instrumenten niet beschikbaar
oplossing: gebruik van transparante vensters



Stap een: positioneer undocked window(s) van instrumenten op de monitor

Soms zijn ingewikkelde instrumenten niet beschikbaar
oplossing: gebruik van transparante vensters



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FSX/P3D variant

PH-TSS



FSX/P3D variant



FSX/P3D variant

PH-TSS



Gebruik “knobster”

- Draaiknoppen nogal eens lastig met muis/touchscreen
- Handige oplossing: “knobster” (Russ Barlow idee)
 - Als optie aanstaat: knop die je aanraakt/aanklikt verandert van kleur (geel),
daarna kun je met een enkele set de draaiknop bedienen. DUS:
één set voor ALLE draaiknoppen
 - Twee rotaries (buitenring en binnenring) met drukknop
 - Sim Innovations verkoopt het nu als kant-en-klare knoppenset



90 euro

- Oorspronkelijk: een Arduino Micro waar rotaries en knop aan verbonden zijn, Arduino stuurt signalen naar AirManager via USB
(zelf te bouwen voor +/-20 euro)

Voorbeeld panel Sim Innovations voor C-172

-knobster-



Demo touchpanel en “Knobster”



Mijn verdere plannen

- Bouw een aantal instrumenten voor FSX/P3D (inclusief randen voor gecompliceerde instrumenten)
- Onderzoek mogelijkheden van eigen touchscreen ontwerp voor creëren “hardware” panels zonder bedrading
- Verbeter bedrading hardware panels
- Maak eigen “knobster-achtig” ontwerp voor FSUIPC/Linda
- Voor Air Manager hoef je geen touchscreen (of zelfs geenextra scherm !) te hebben. Kunt ook alles aansturen met (druk) knoppen. Ook dan kun je een “enkele-rotary” oplossing creëren. Principe bekend – werk aan module
- Verbeter proto-type oplossing die per Arduino aantal knoppen fors vergroot (nu 1 per Arduino pin of bijv. $8 \times 8 = 64$ met 16 pinnen via SimInnovations hardware matrix functie. Kan in principe ook bijv. $31 \times 31 = 961$ zijn voor 10 pinnen).

