

# Connecting the electronics engineers and mechanical designer with Eagle and Fusion 360

Harv Saund

Technical Specialist – Fusion 360

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# Safe Harbour

We may make statements regarding planned or future development efforts for our existing or new products and services. These statements are not intended to be a promise or guarantee of future availability of products, services or features but merely reflect our current plans and based on factors currently known to us. These planned and future development efforts may change without notice. Purchasing decisions should not be made based upon reliance on these statements.

These statements are being made as of 20<sup>h</sup> June 2018 and we assume no obligation to update these forward-looking statements to reflect events that occur or circumstances that exist or change after the date on which they were made. If this presentation is reviewed after 20<sup>th</sup> June 2018, these statements may no longer contain current or accurate information.

# About the Speaker



## Harv Saund

Technical Specialist – Fusion 360, Autodesk UK

harv.saund@autodesk.com | @harv\_saund

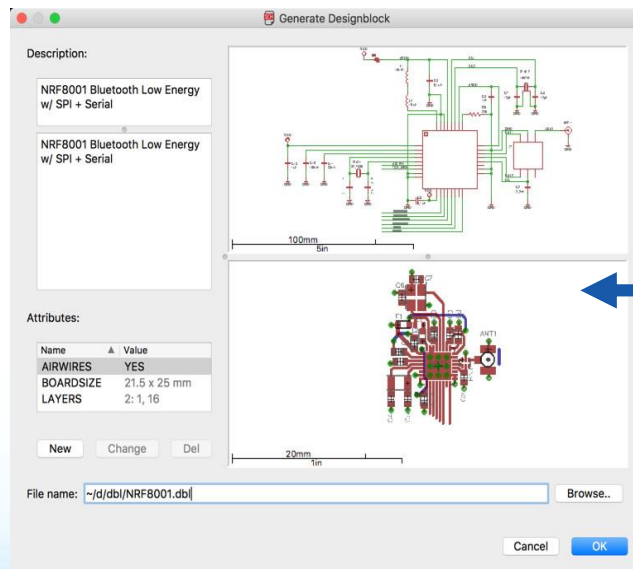
Joined Autodesk in 2016.

Prior to Autodesk, 5 years as a Solidworks technical consultant, 2 years spent in Race Engine Development & a degree in Motorsport Engineering

Product focus is the Fusion 360 platform incl. CAM, Eagle, FEA, Generative Design & Library.IO

# Agenda

- What is a PCB?
- Cloud Connected
- Workflows
  - Eagle to Fusion
  - Fusion to Eagle
  - Bidirectional
- Summary

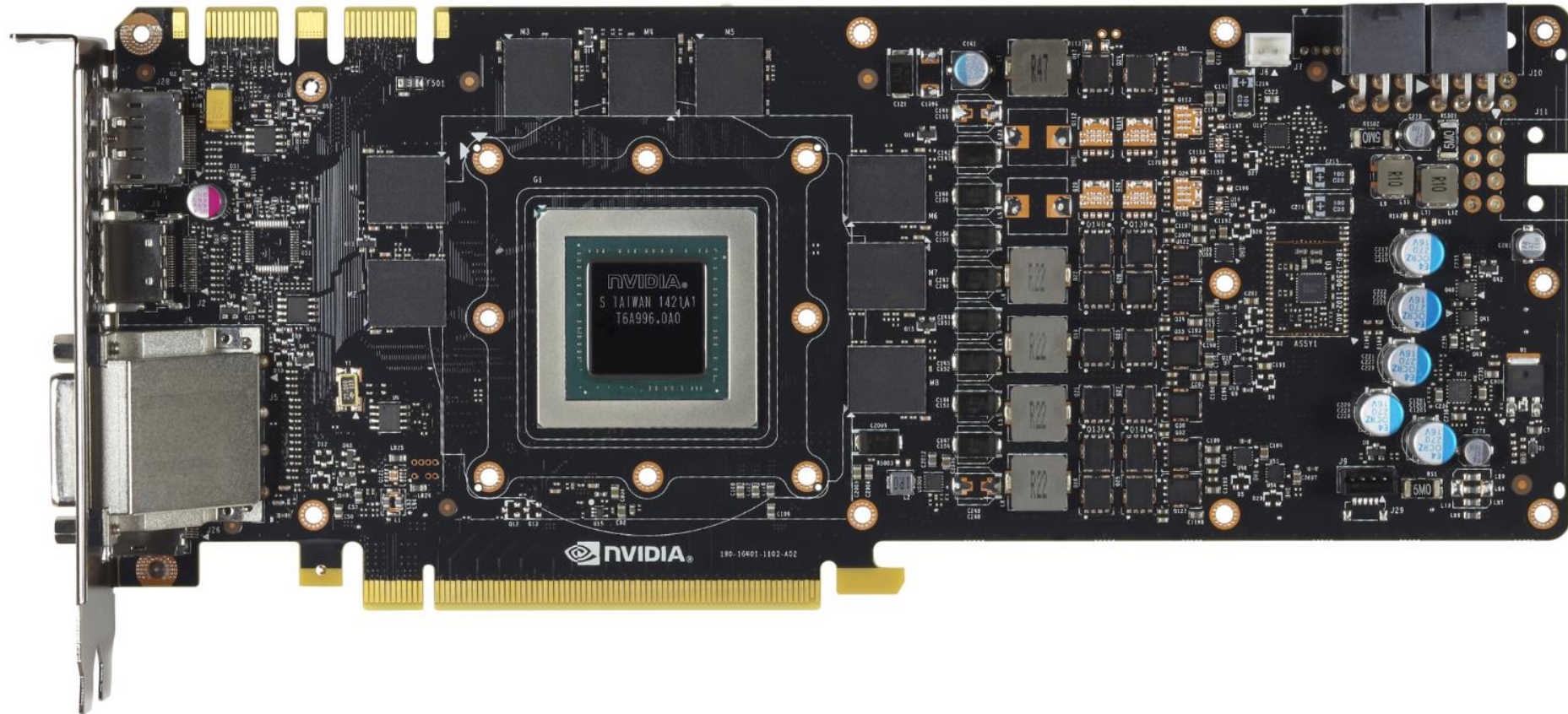




# What is a PCB?

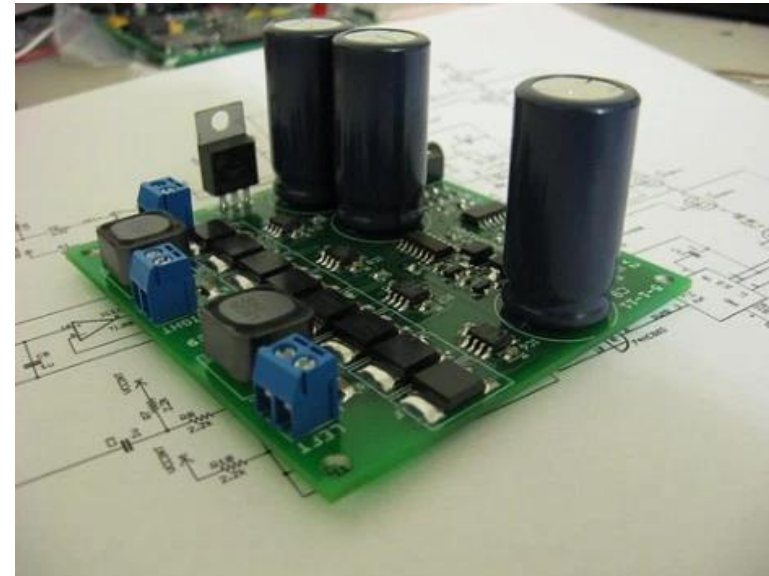
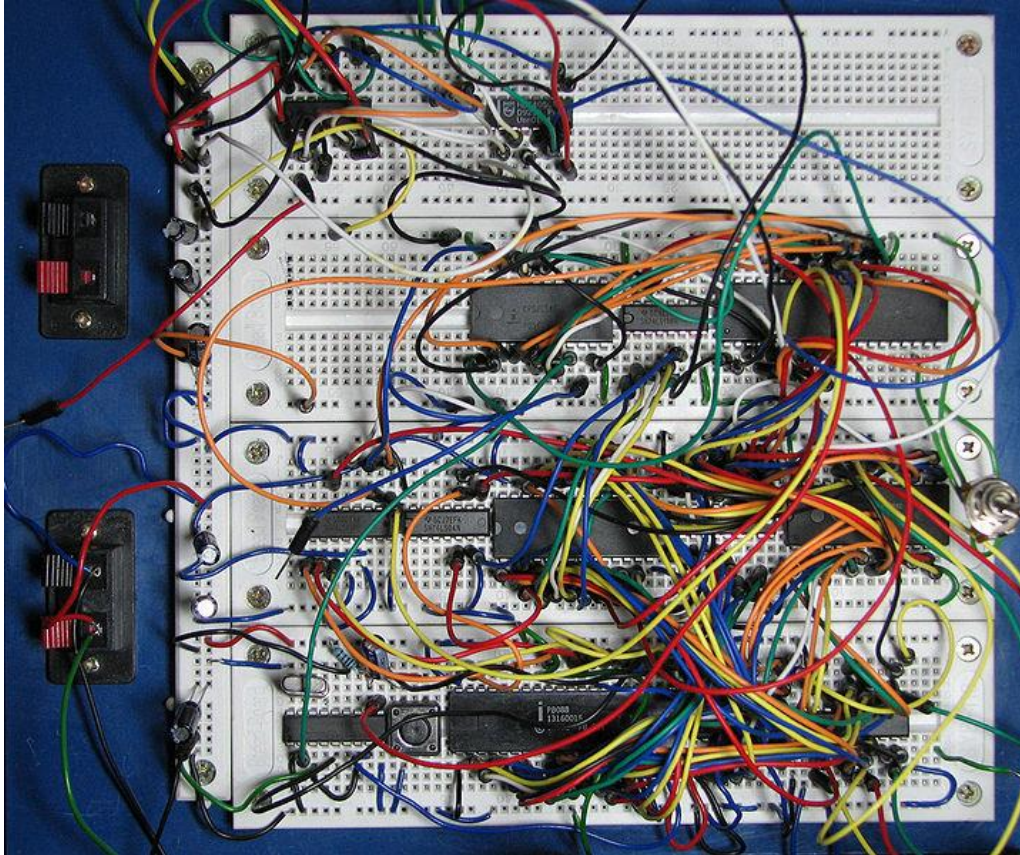
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# What is a PCB?

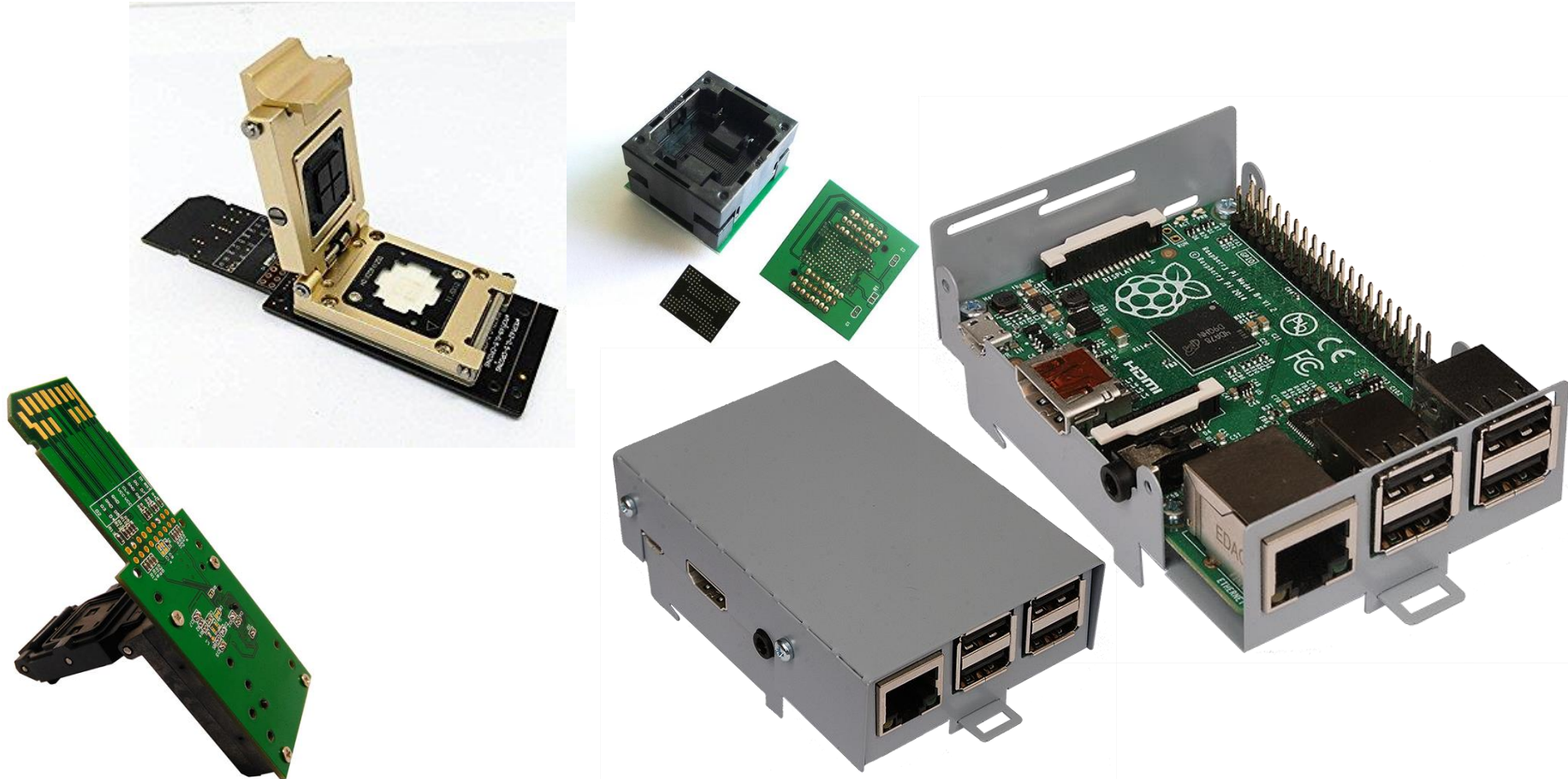




# What does a PCB solve?

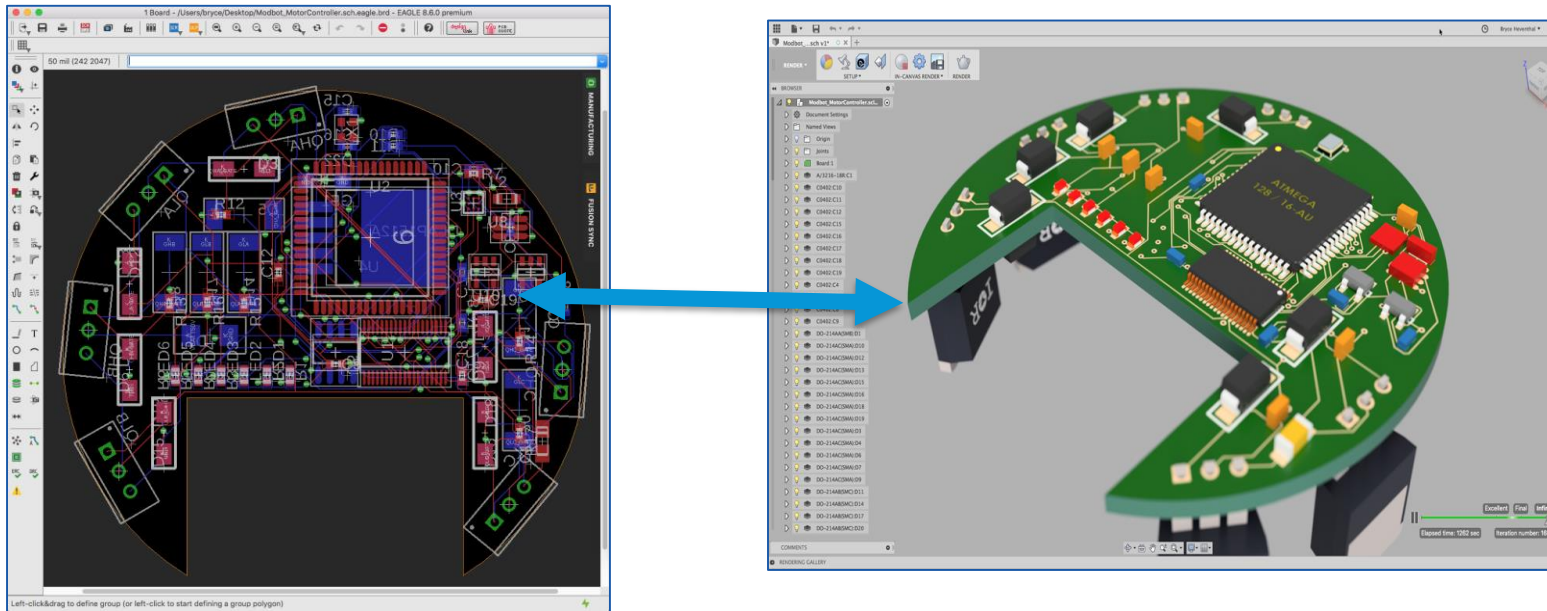


# Thinking in Isolation





# What is the problem Autodesk are trying to solve?



- >95% of electronics designs have a mechanical design problem
- >90% of those have multiple
- Electronics MFG = \$80B TAM

# Cloud Connected

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# What is EAGLE?

PCB DESIGN TOOL

CONTENT

COMMUNITY



POWERFUL + EASY-TO-USE

THOUSANDS OF FREE RESOURCES

LARGEST EDA COMMUNITY

SINCE  
1988

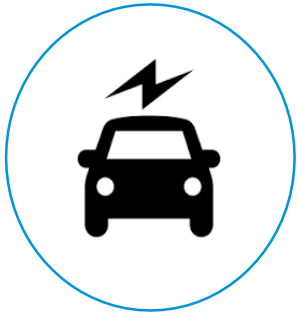
EASY – APPLICABLE – GRAPHICAL – LAYOUT – EDITOR

Image courtesy of Maga Animation Studio

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# Diversity of application



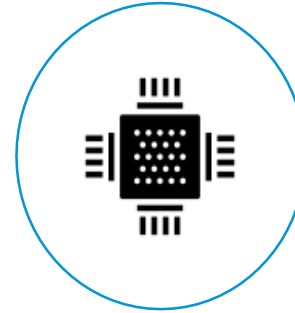
Automotive



Life Sciences



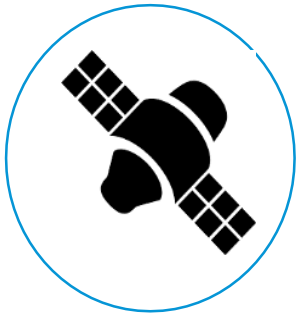
Consumer Electronics



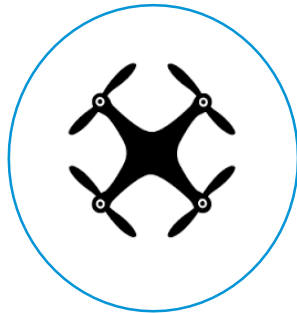
Semiconductors



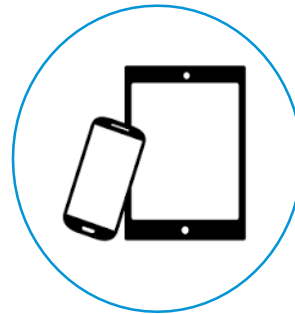
IoT



Aerospace  
& Defense



Electronics  
& High-tech



Mobile Devices &  
Communication



Industrial Controls  
Automation



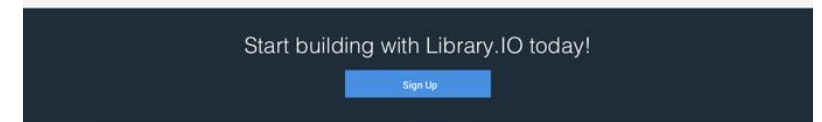
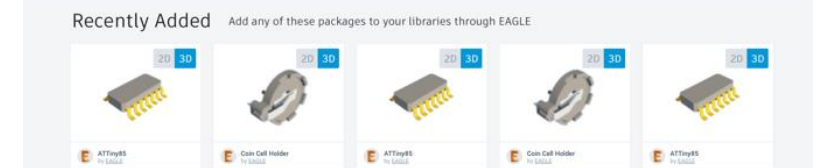
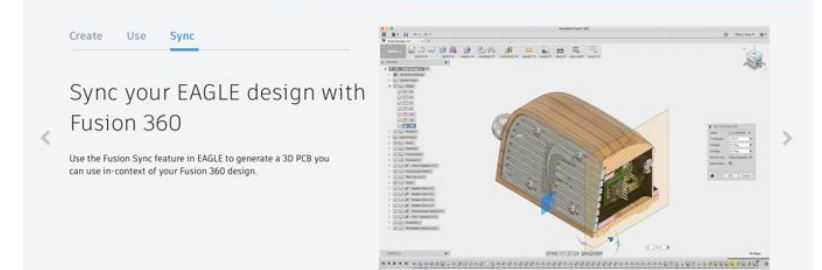
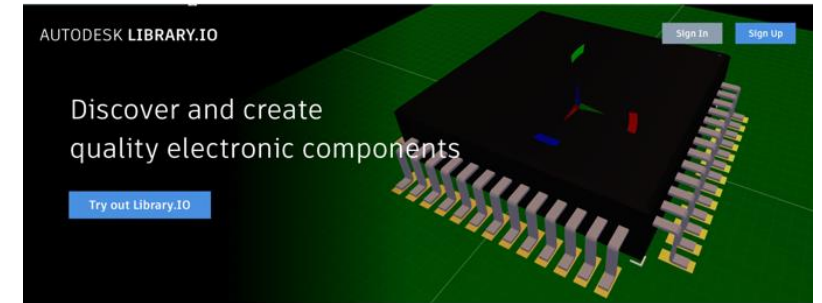
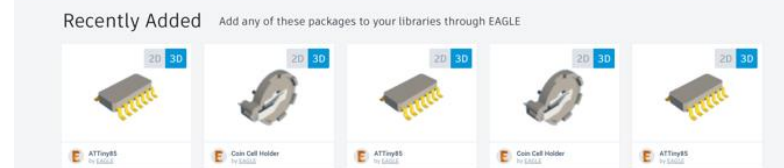
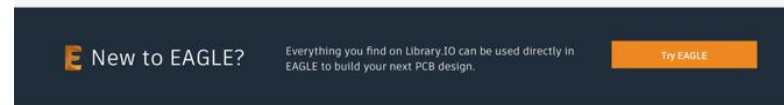
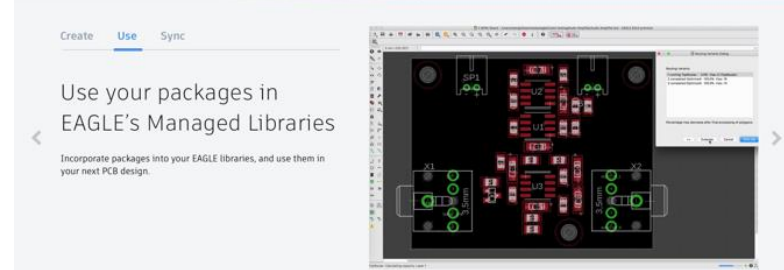
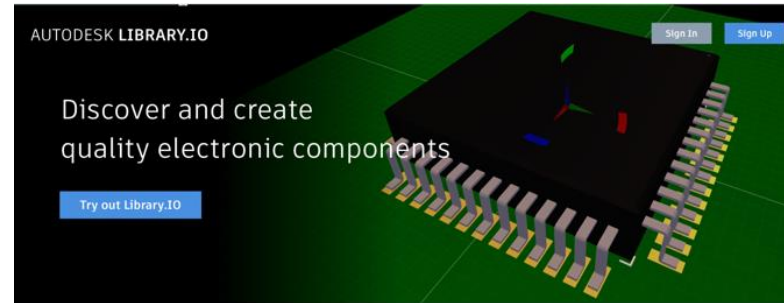
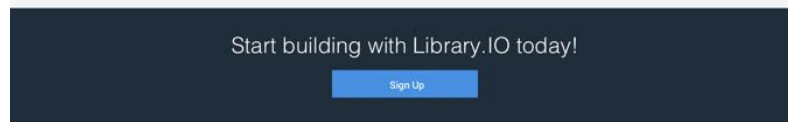
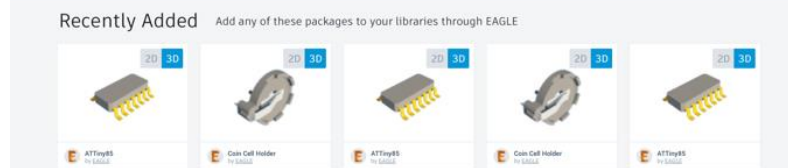
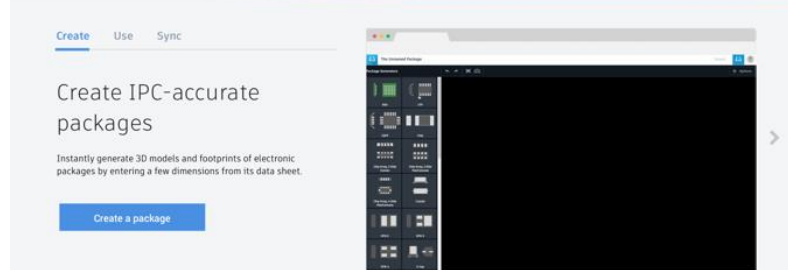
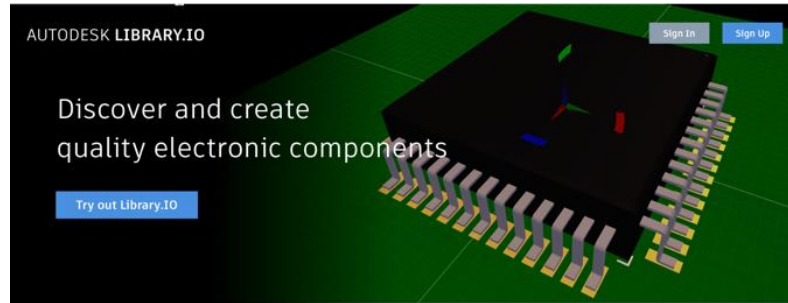
Research &  
Education

EAGLE is used widely across different industries and applications

# What is Fusion 360



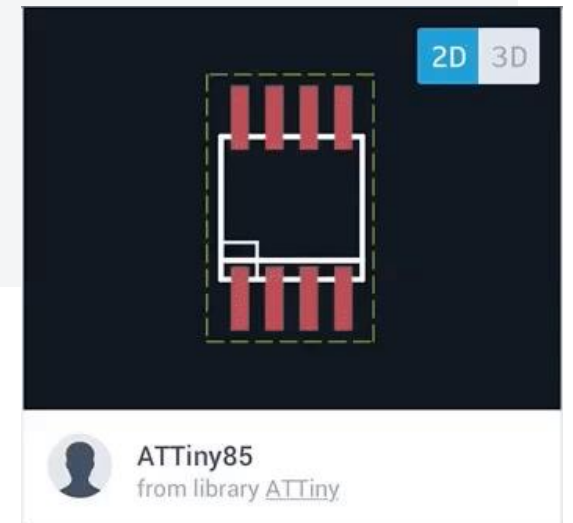
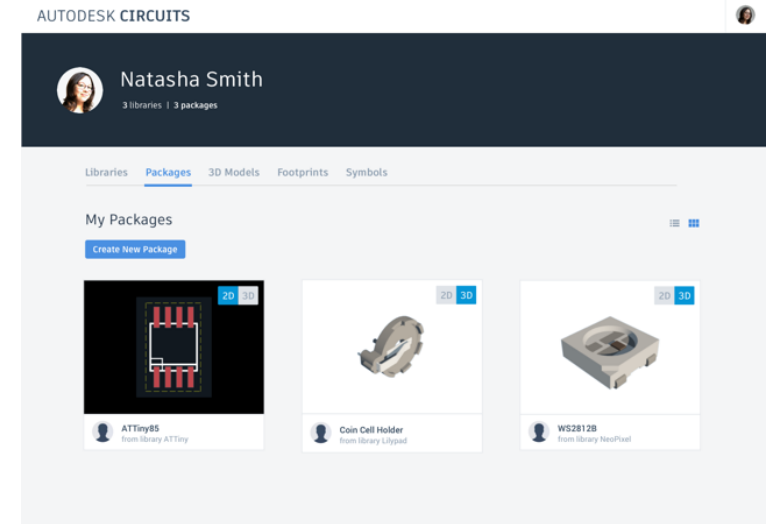
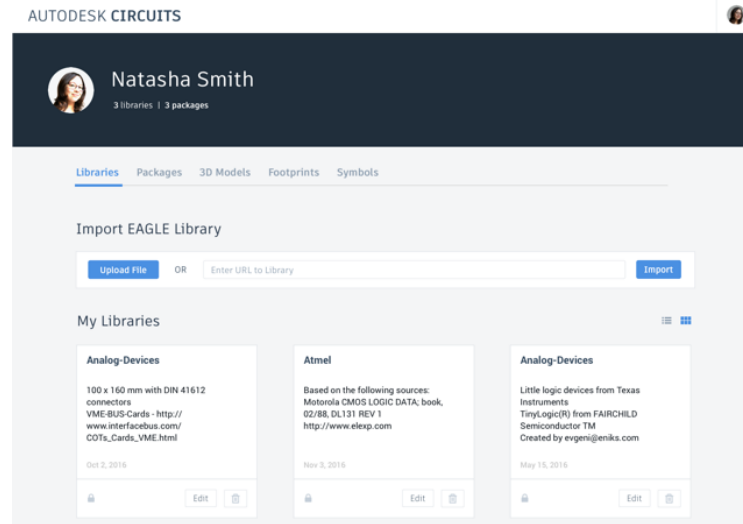
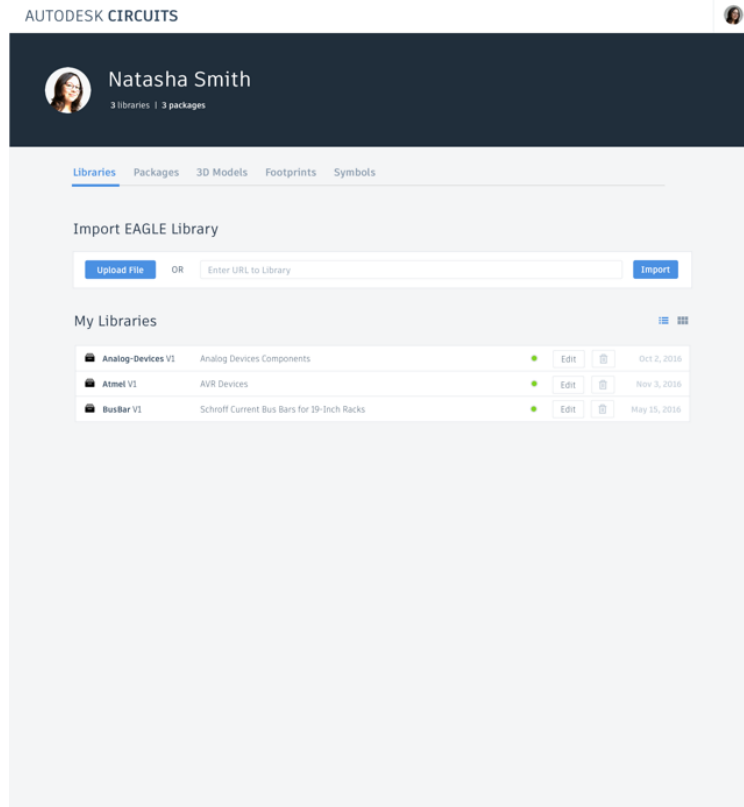
# Library.io - the future of 3D ECAD content



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# library.io - the future of 3D ECAD content



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Control Panel - EAGLE 8.7.1 premium

Richard Hammerl

# 3D Models to Library

1 Schematic - /Users/hammerr/OneDrive - autodesk/eagle/e-projects/egg-timer/egg1.sch - EAGLE 8.7.1 premium

1/1

design link

Sheets

0.1 inch (7.3 6.3)

Left-click&drag to define group (or left-click to start defining a group polygon)

Search

/Users/hammerr/OneDrive - autodesk/eagle/e-projects/egg-timer/egg1.lbr Date: 04.04.18 13:29 Size: 600.9 kB

< Prev > Next

>NAME  
>VALUE

5mm  
0.2in

PIN HEADER

H3  
MOUNT-PA

H4  
MOUNT-PA

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# Online Package Creator

Device

- \*555
- A4L-LOC
- CPOL-EU
- GND
- LED
- MOUNT-PAD-ROUND
- PINHD-2X3
- POTENTIOMETER\_
- R-EU\_
- SE11

Package

- SANYO-OSCON\_SMD\_E7
- SANYO-OSCON\_SMD\_E12
- SANYO-OSCON\_SMD\_F8
- SANYO-OSCON\_SMD\_F12
- SE11
- SFH480
- SFH482
- SMART-LED
- SMARTLED-TTW
- SMC\_A
- SMC\_B
- SMC\_C
- SMC\_D
- SMC\_E
- SMC\_P
- SMC\_Z
- SML0603
- SML0805
- SML1206
- SO08
- TAP5-45
- TAP5-50
- TAP5-60
- TAP5-70
- TAP5-80
- TT2D4
- TT2D4L
- TT2D5
- TT2D5L
- TT2D6
- TT2D6L
- TT2D7
- TT2D7L
- TT5D6

3D Package

- 2X03
- 2X03/90

Symbol

- 555
- A4L-LOC
- CPOL
- GND
- LED
- LSP
- MOUNT-PAD
- PINH2X3
- POTEURO
- R-EU

10mm 0.5in

2mm 0.1in

TIMER

Package	Variant
SO08	D
DIL08	N

Add Device...

Add Package...

Import 3D Package

Add Symbol...

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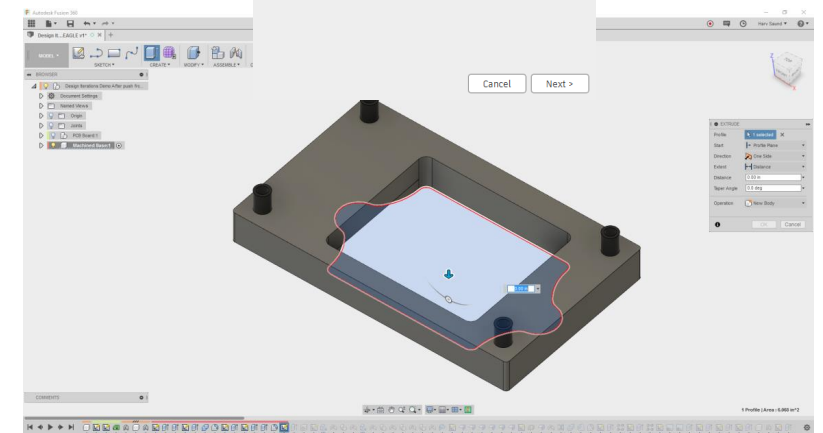
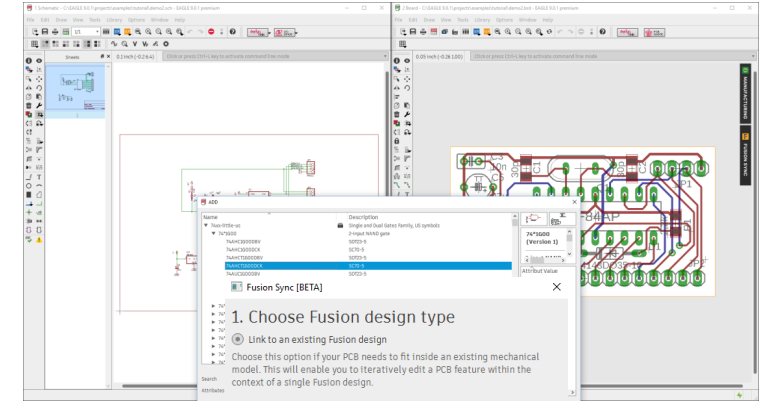
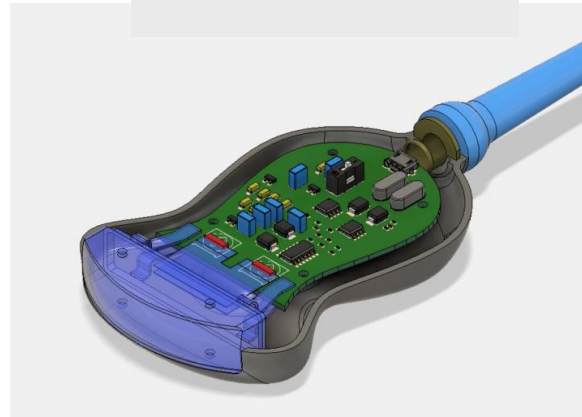
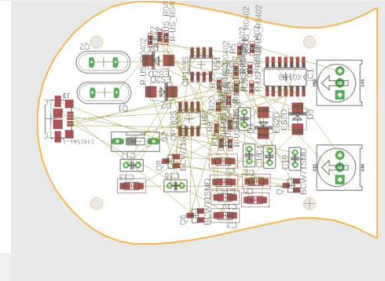
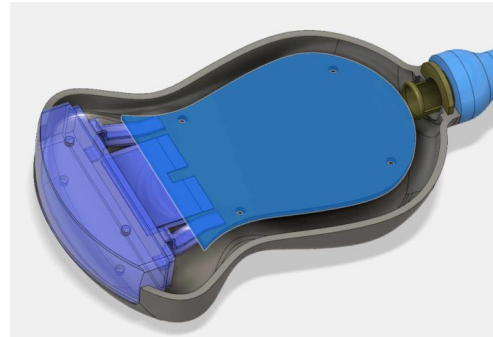
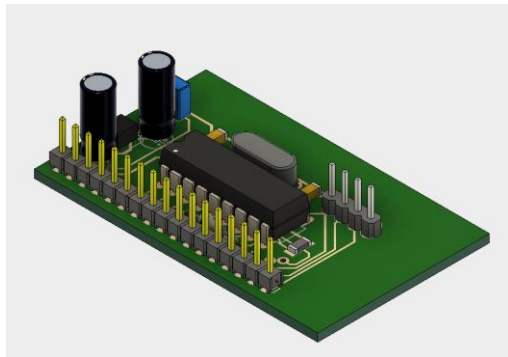
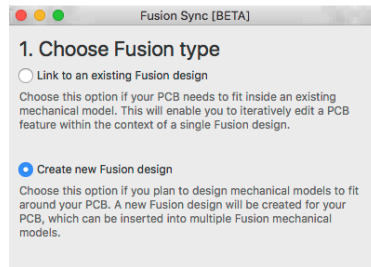
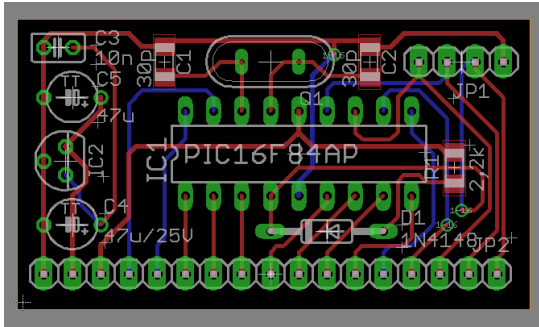




# Workflows

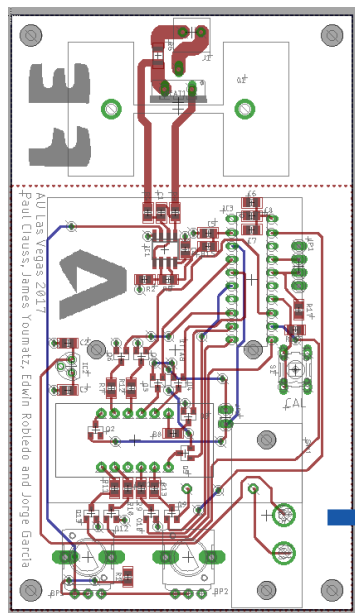
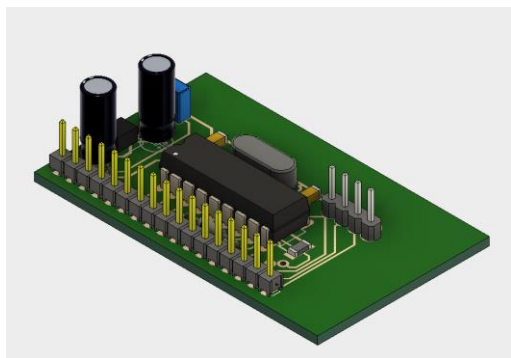
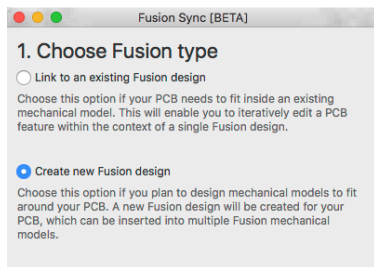
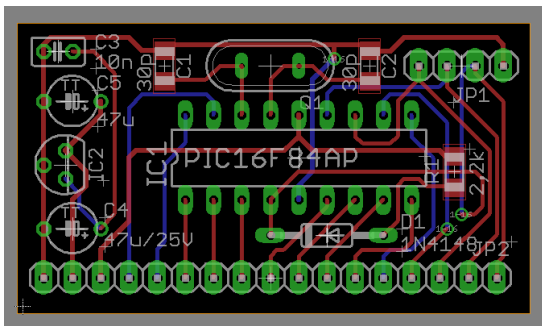
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# Workflows



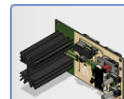


# Eagle to Fusion



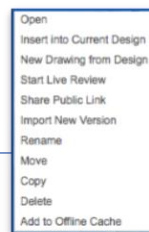
## Create new Fusion design

Choose this option if you plan to design mechanical models to fit around your PCB. A new Fusion design will be created for your PCB, which can be inserted into multiple Fusion mechanical models.



DC\_LOAD\_AU

10/2/17



V13

DC\_LOAD\_AU v13:1

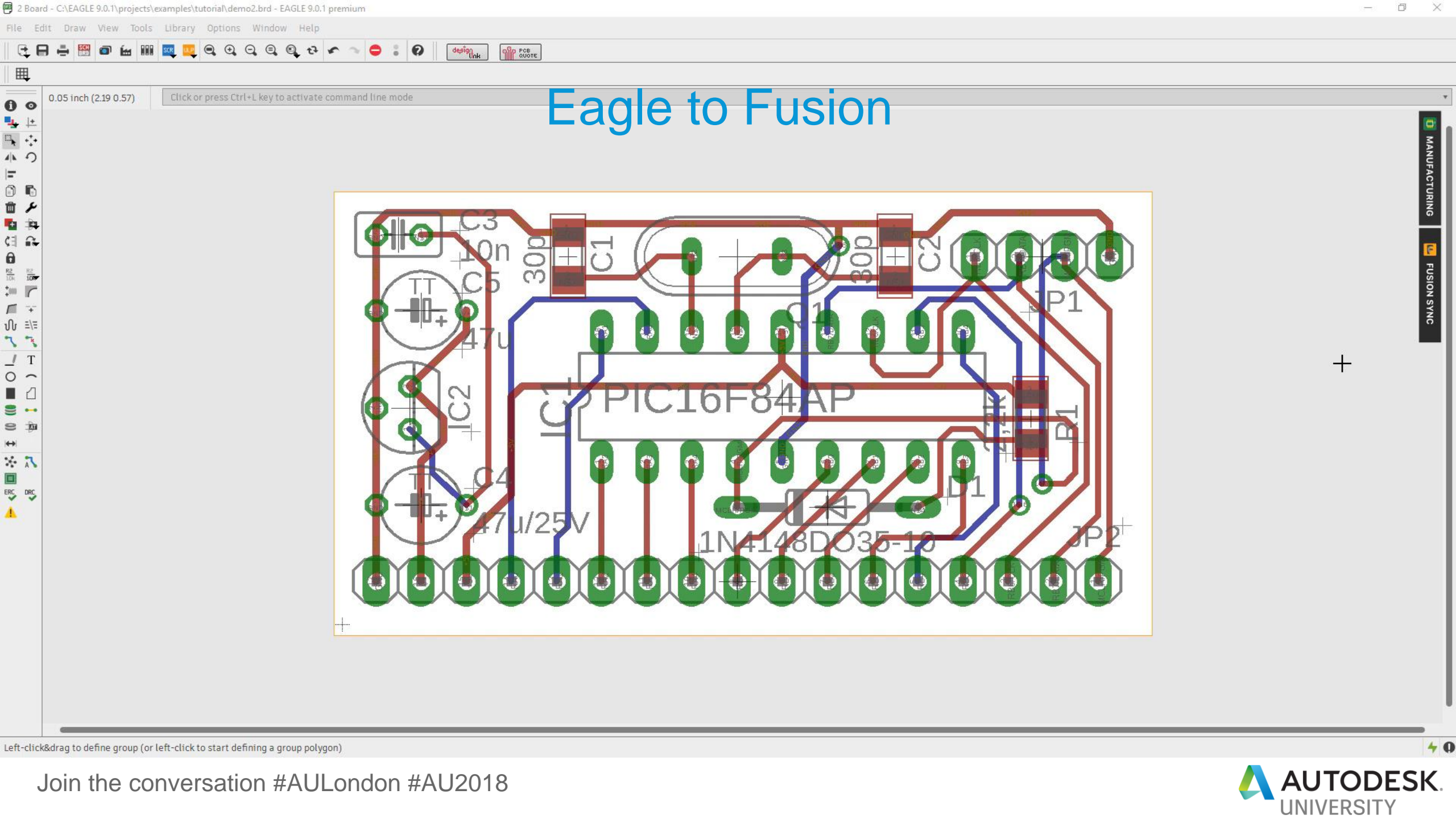
DC\_LOAD\_AU v13:1

DC\_LOAD\_AU v13:1

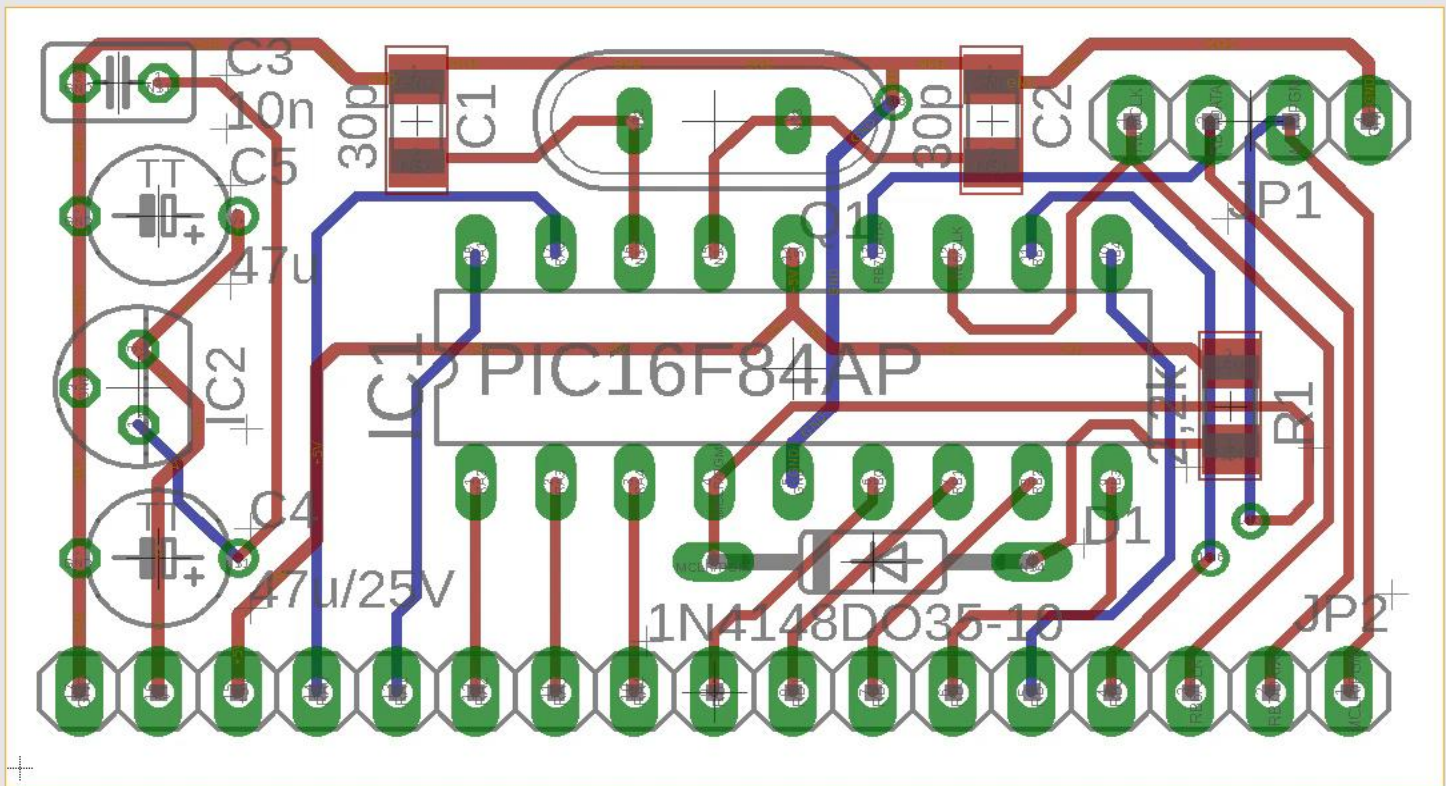
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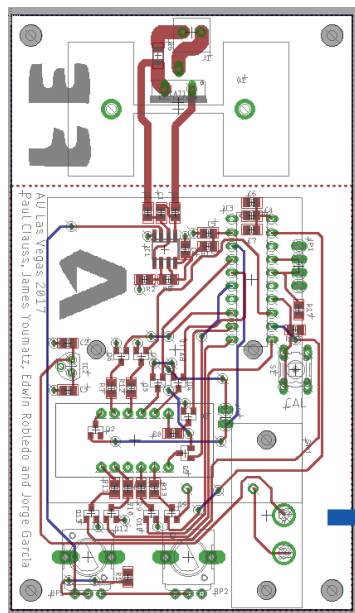
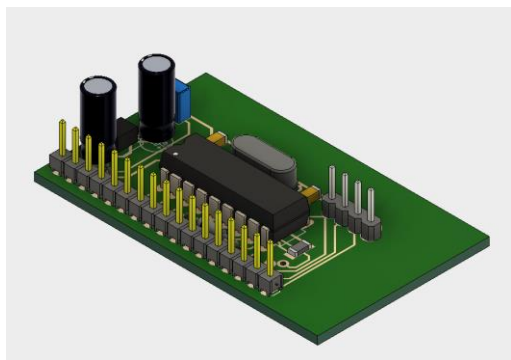
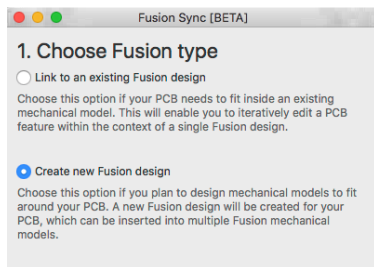
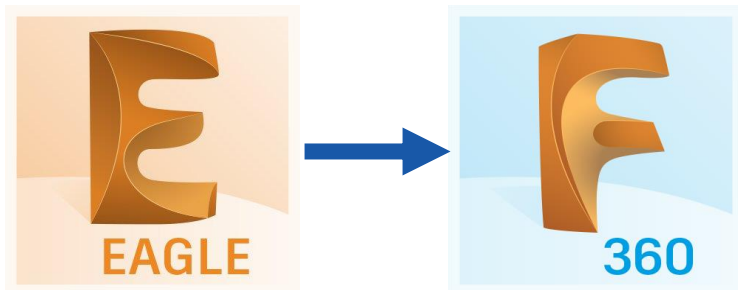
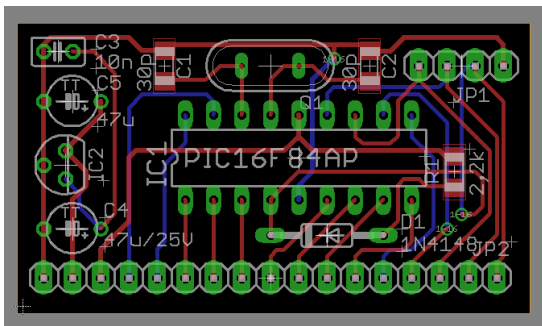
DC\_LOAD\_AU v3:1



# Eagle to Fusion

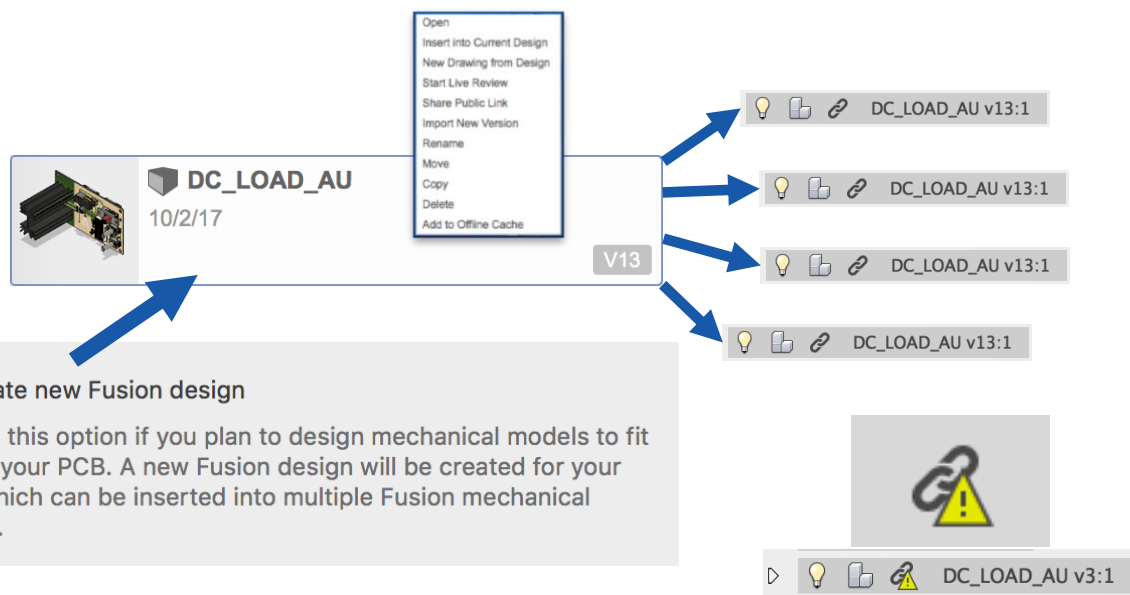


# Eagle to Fusion

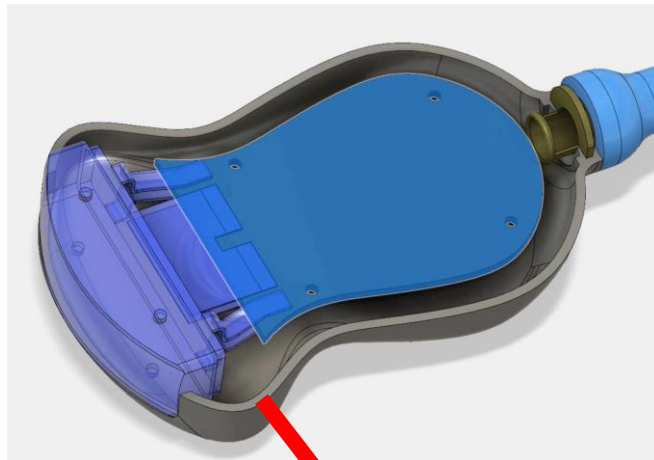


## ☒ Create new Fusion design

Choose this option if you plan to design mechanical models to fit around your PCB. A new Fusion design will be created for your PCB, which can be inserted into multiple Fusion mechanical models.



# Fusion to Eagle



Pull from Fusion

**OUT OF SYNC**

Pull from Fusion to sync your changes

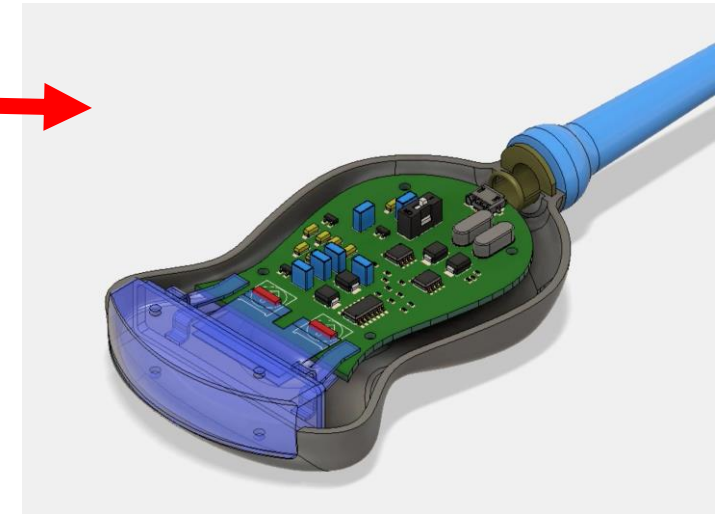
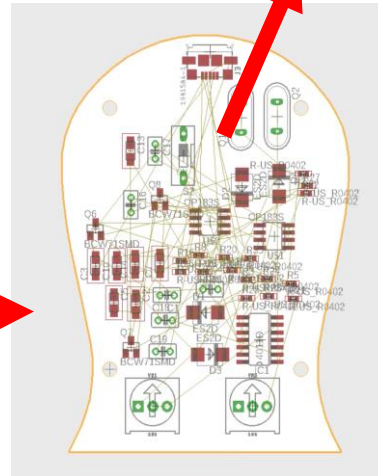
Pull from Fusion...

Push to Fusion

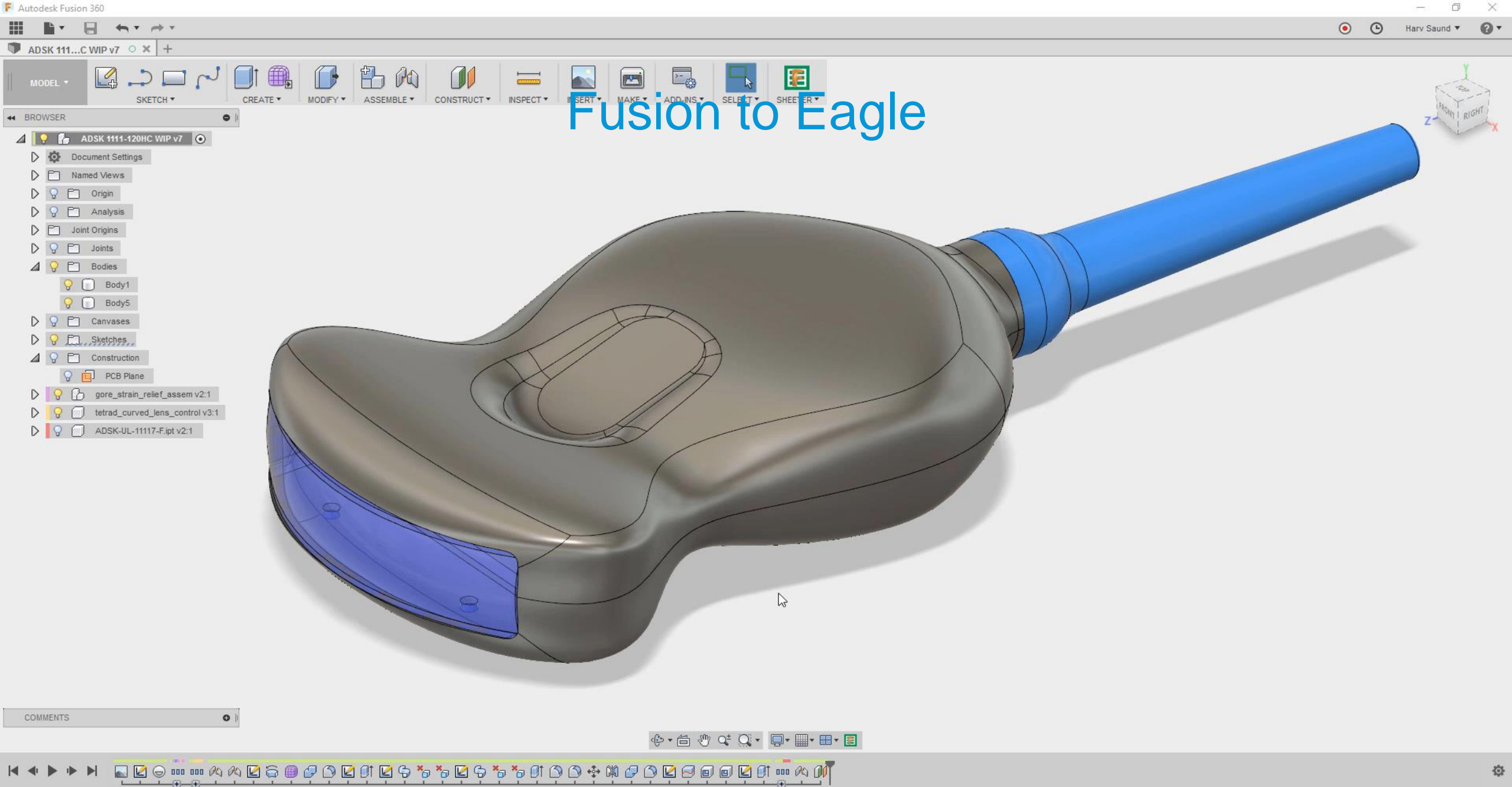
**OUT OF SYNC**

Push to Fusion to sync your changes

Push to Fusion...

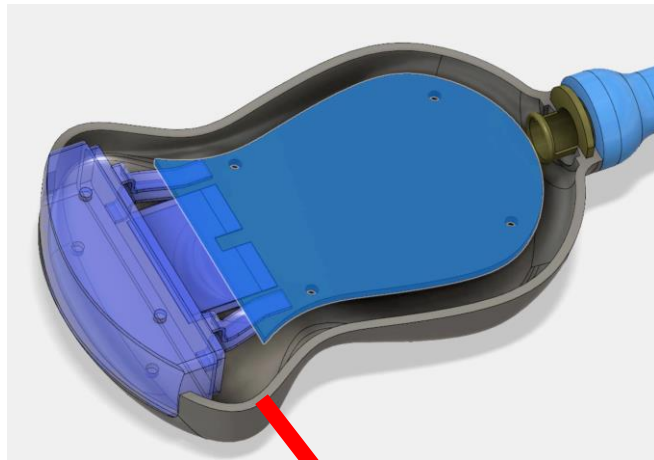






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# Fusion to Eagle



Pull from Fusion

**OUT OF SYNC**

Pull from Fusion to sync your changes

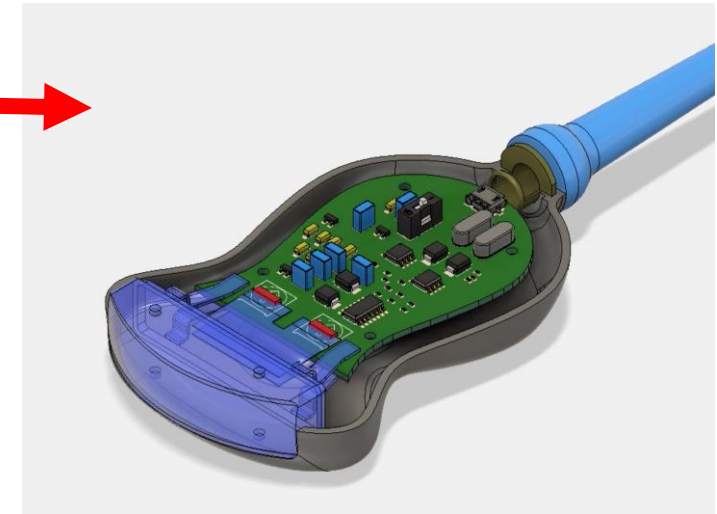
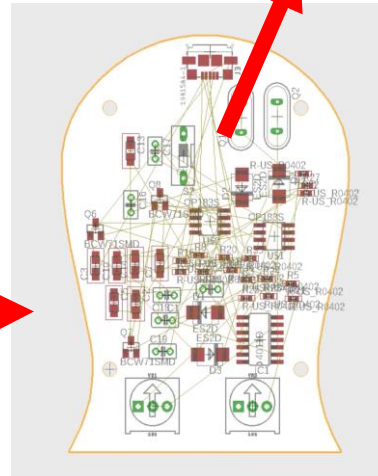
Pull from Fusion...

Push to Fusion

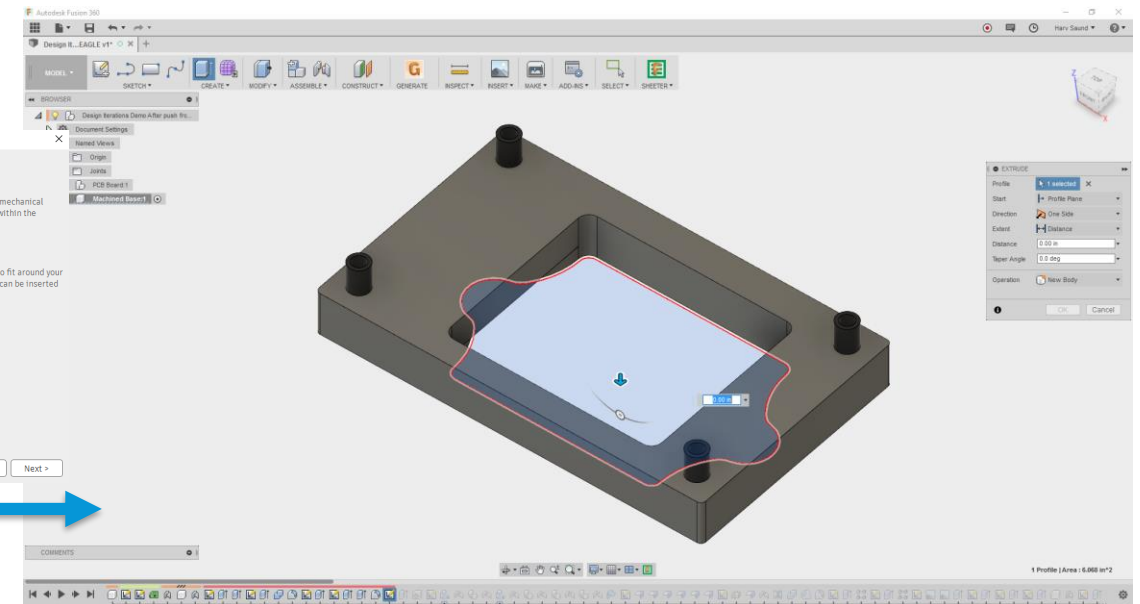
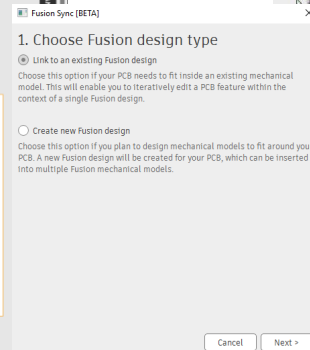
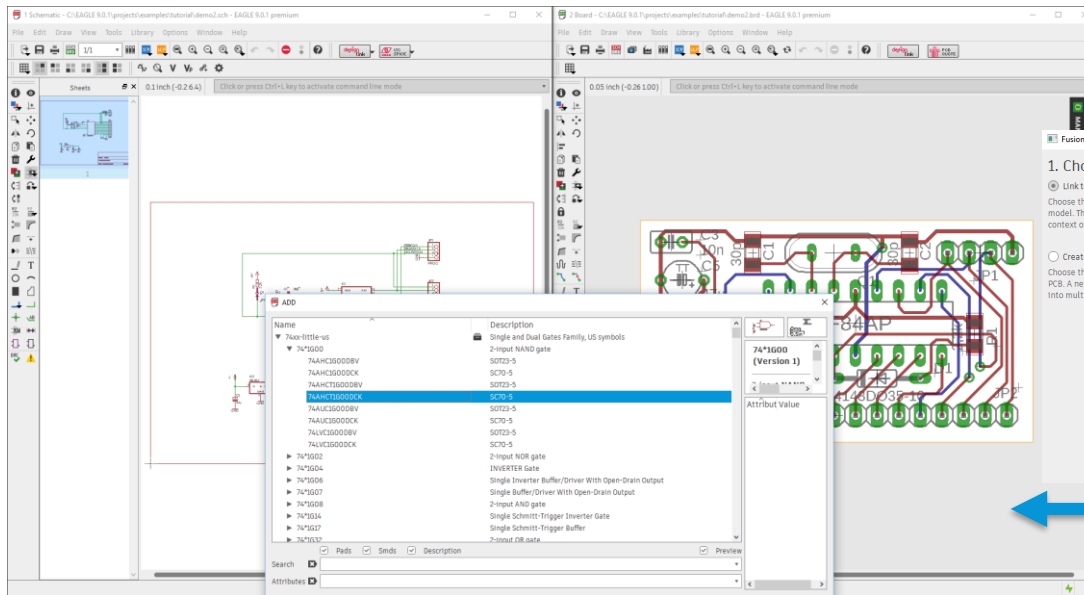
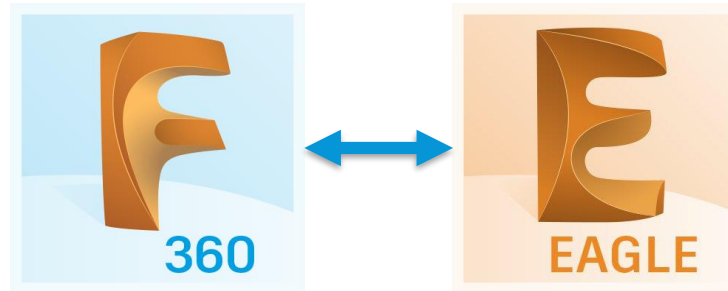
**OUT OF SYNC**

Push to Fusion to sync your changes

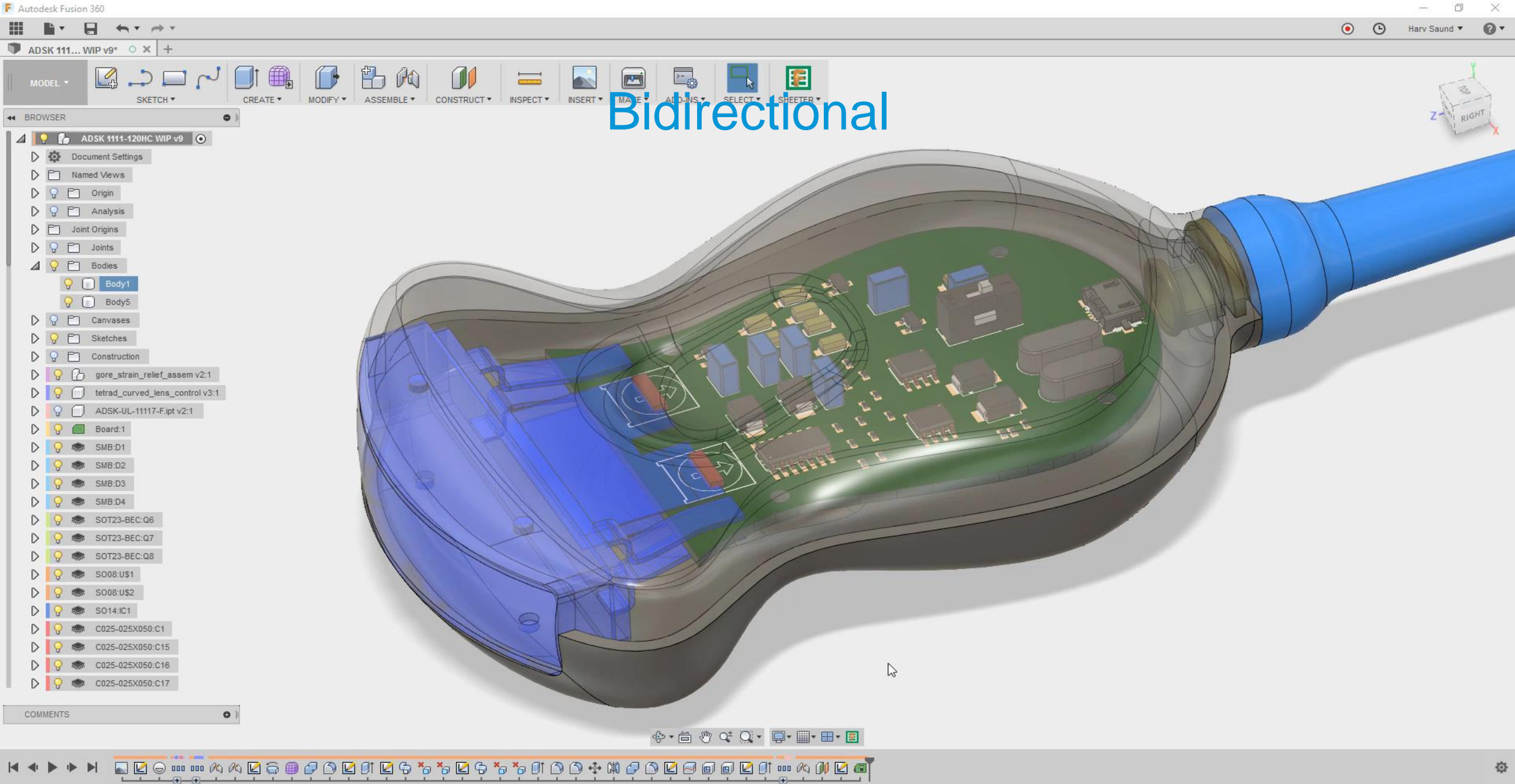
Push to Fusion...



# Bidirectional





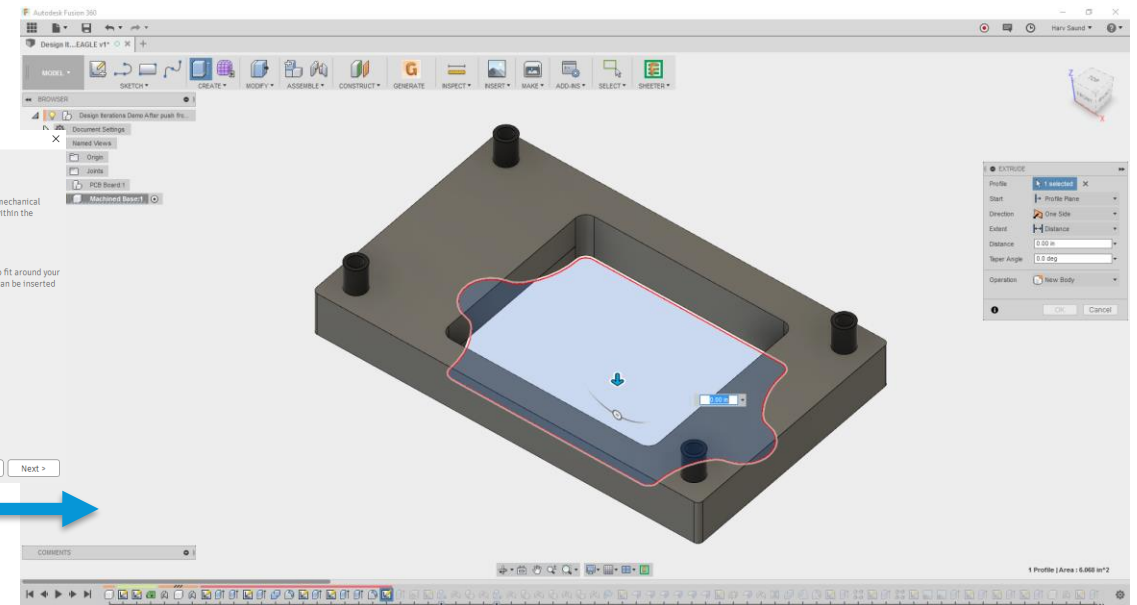
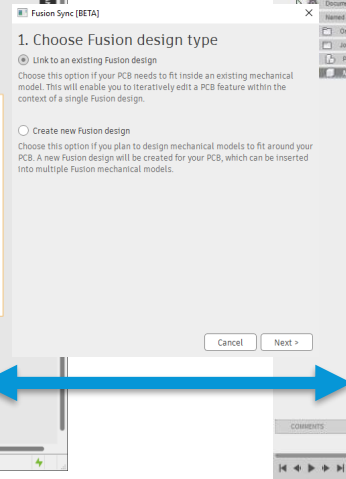
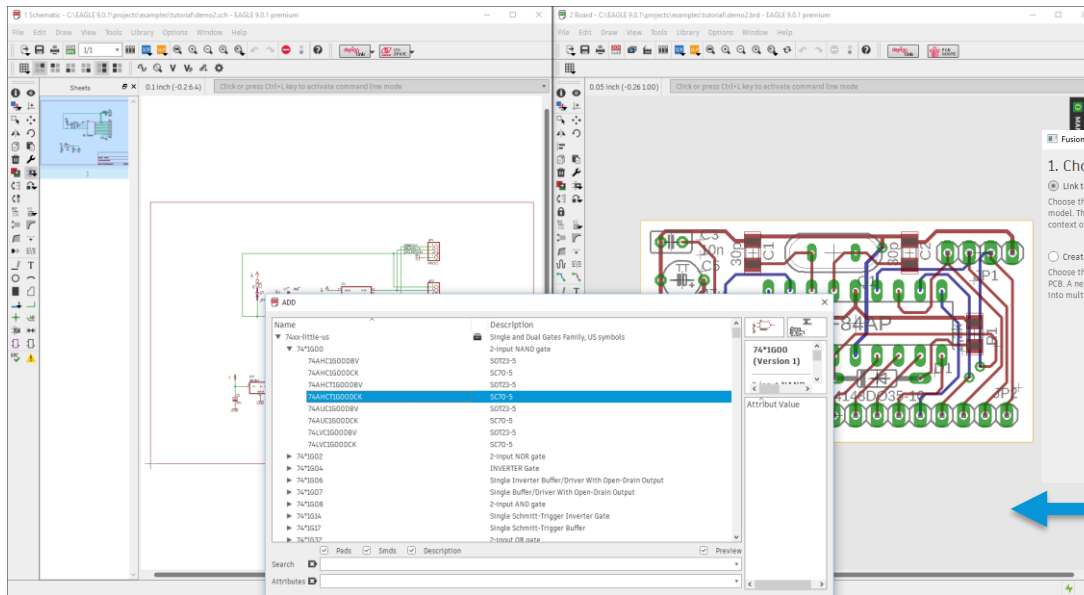
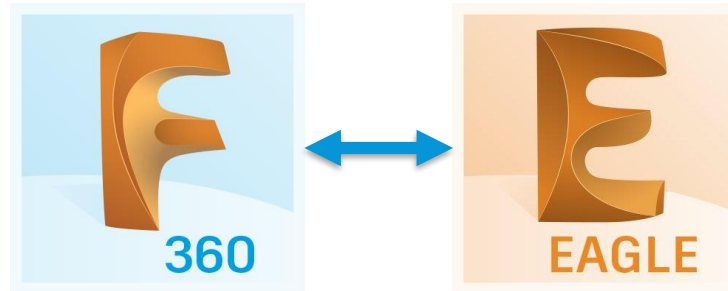


Bidirectional

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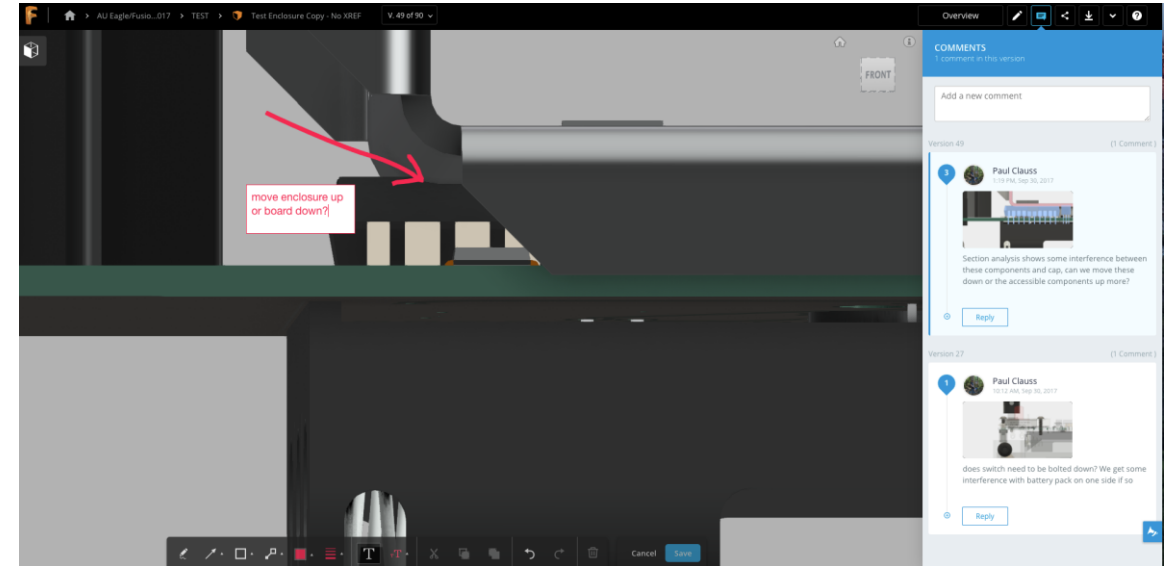
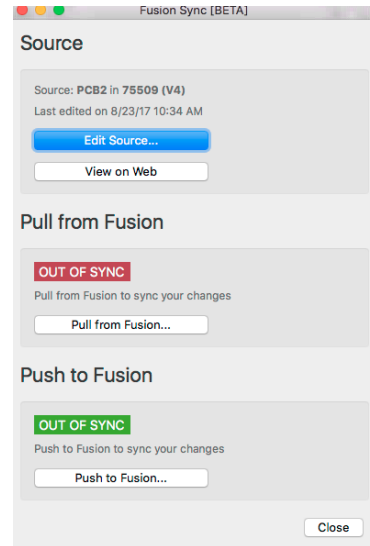
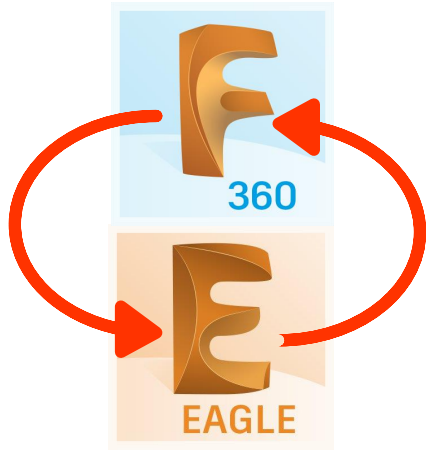
# Bidirectional



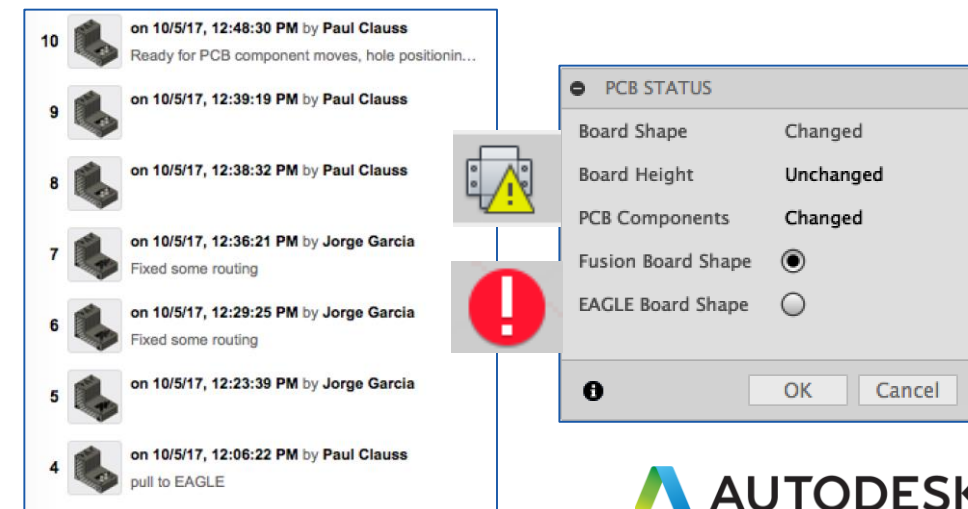
# Summary

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# Advantages of integrated ECAD and MCAD



- The electrical, mechanical, and manufacturing teams can work with a single Fusion 360 design and EAGLE board file
- Less file conversions
- Communication! Comments!



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