



# RoboWare

Make Creating Robots Easier

## A Product Oriented Design IDE for ROS Developers

ROS Conference

CANADA VANCOUVER | 2017.9



# Content



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The pain spots of robot research and development




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A woman with glasses and a white shirt is shown in a state of distress, holding her head with both hands. She is sitting at a desk with several laptops open. The scene is dimly lit with a blue tint. The text 'Robot research and development' is overlaid on the image.

Robot research and development

# PAIN SPOTS

# Pain spots of design and development

## PAIN SPOTS



- Who can give me a design tool ?
- Who can give me tool to develop ROS ?
- Who can help me make GUI ?
- Who can help me select components ?



# Pain spots of design and development

## PAIN SPOTS



- Who can give me a design tool ?
- Who can give me tool to develop ROS ?
- Who can help me make GUI ?
- Who can help me select components?

# Pain spots of design and development



01

## Age of Internet

Platform : Win, Linux, Mac  
Tech : Java, C#, PHP  
Tool : Eclipse, VS Studio, .....



02

## Age of mobile Internet

Platform : Android , iOS  
Tech : Java, Obj-C  
Tool : Android Studio , Xcode



03

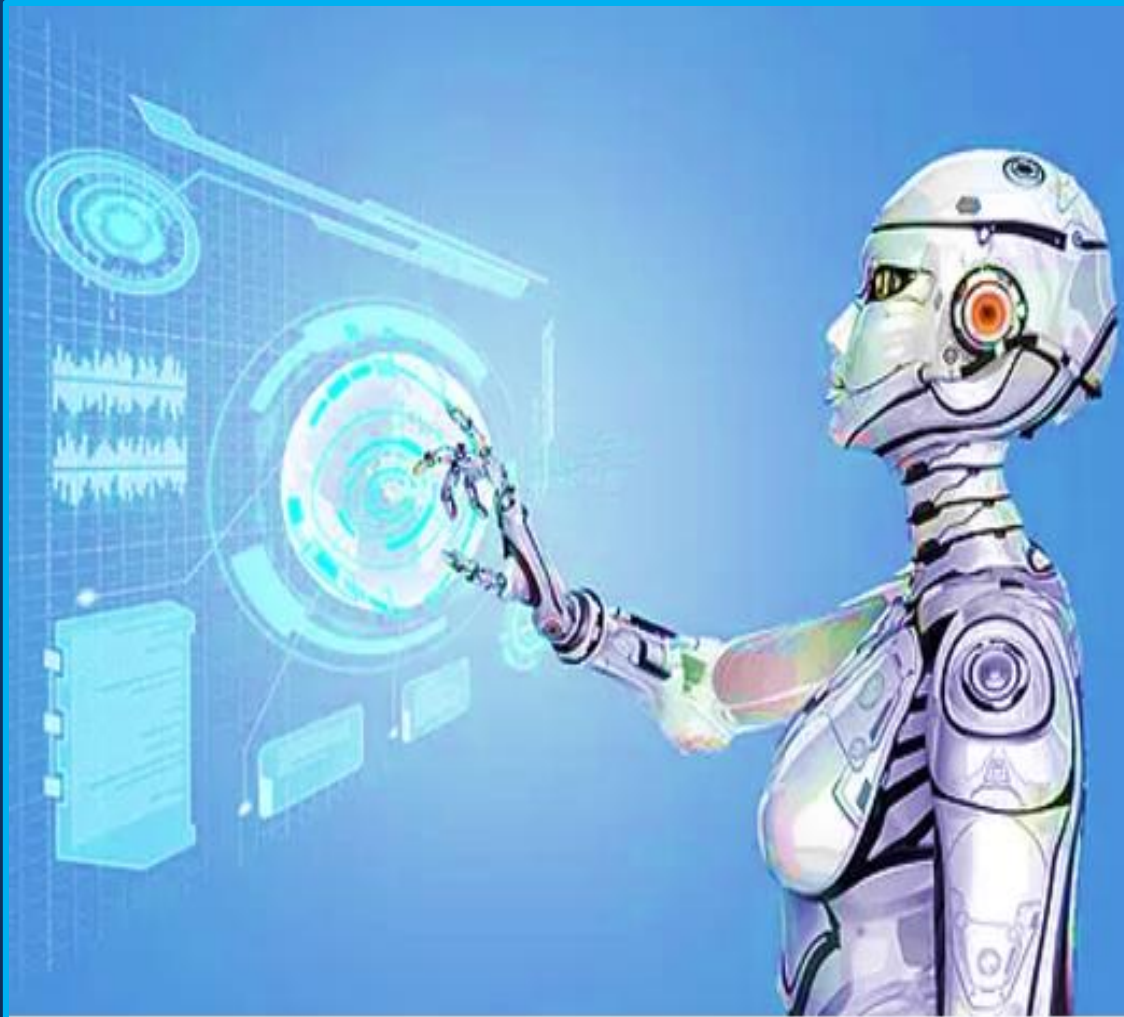
## Age of robots

Platform: Linux  
Tech : ROS  
Tool : **None**



# Pain spots of design and development

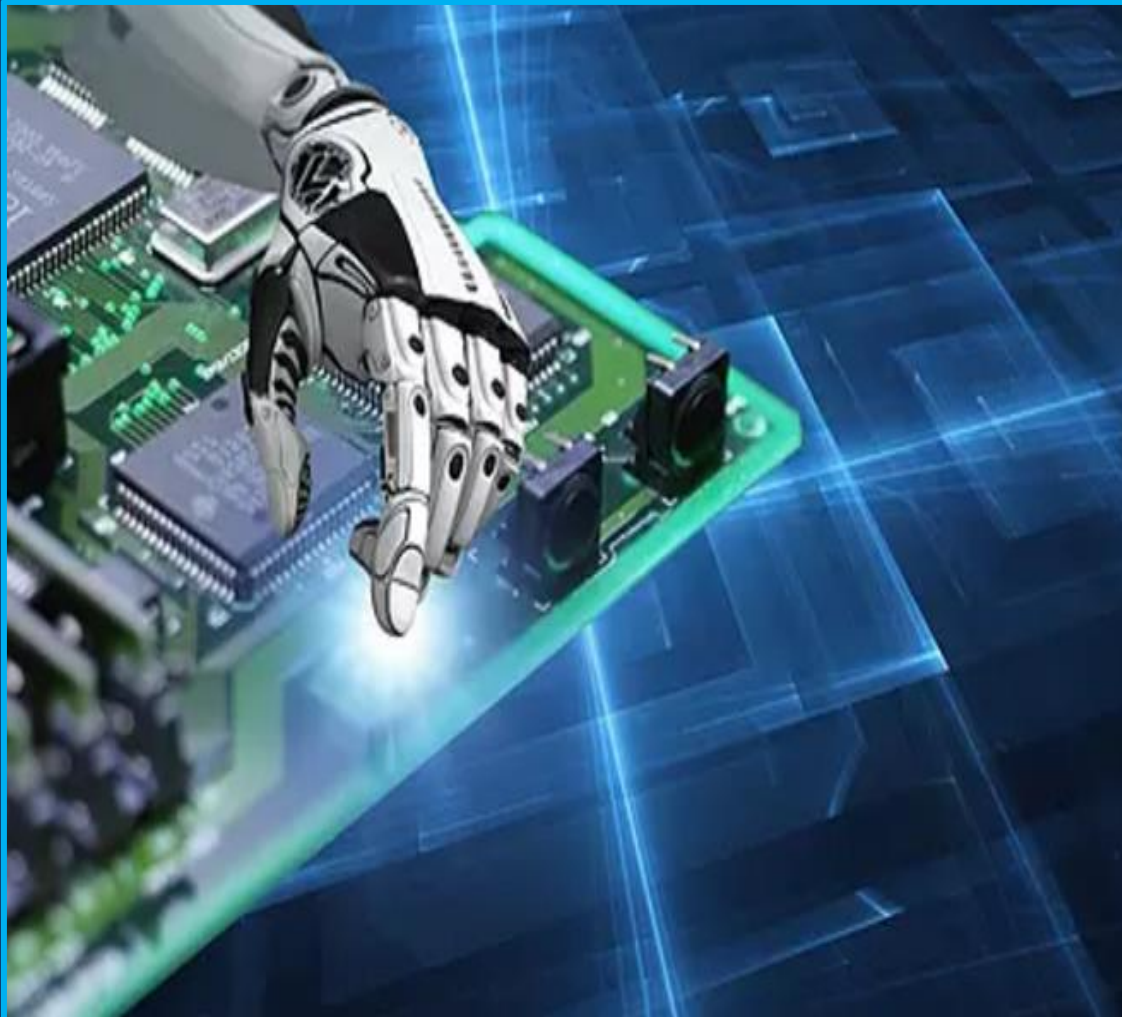
## PAIN SPOTS



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# Pain spots of design and development

## PAIN SPOTS



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What can help us develop robots?

Robot development IDE based on ROS



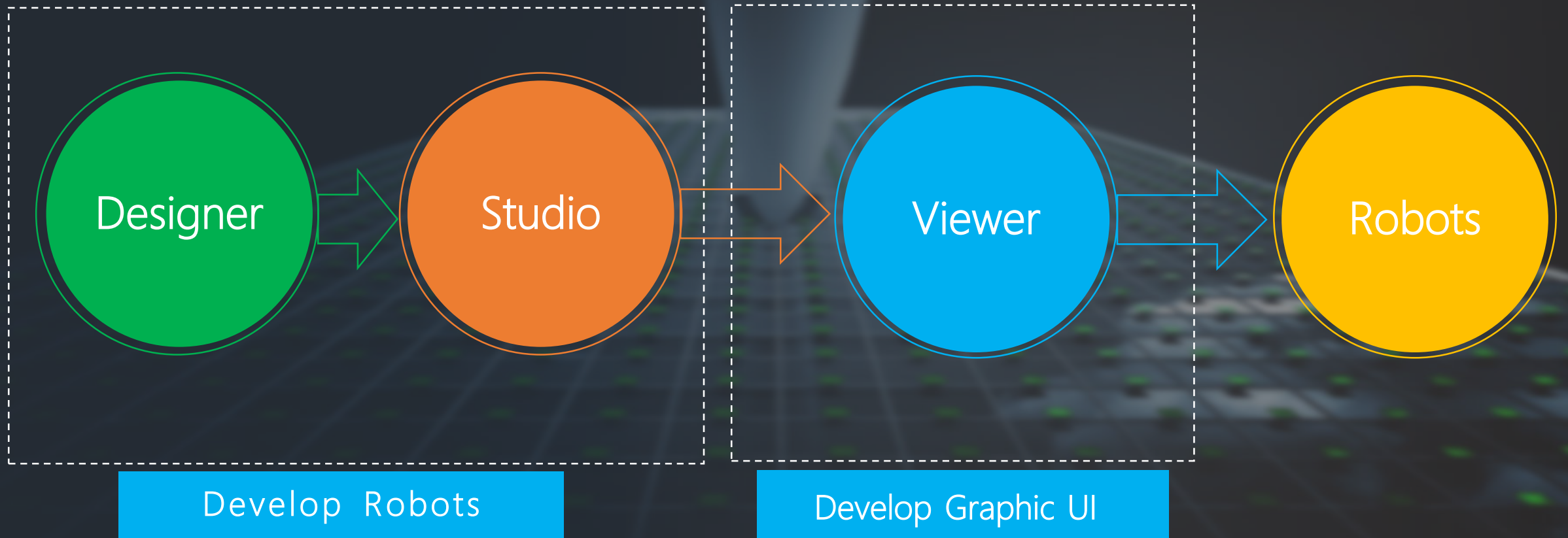
# RoboWare

Make creating robots easier



# RoboWare

New Concept: POD Product Oriented Design



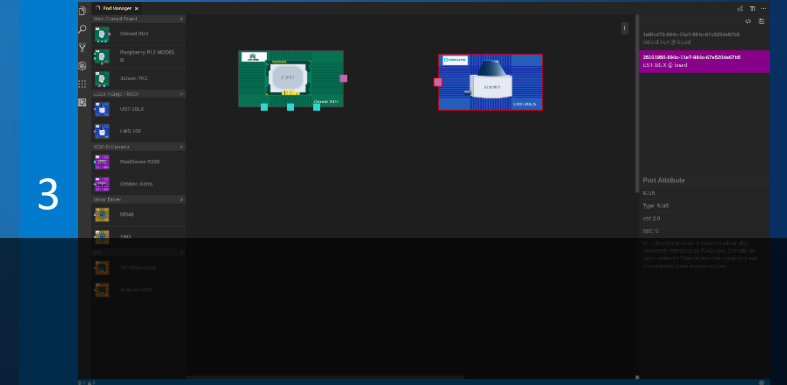
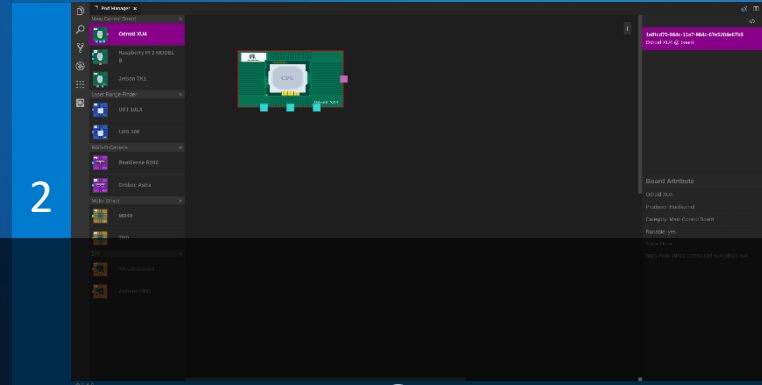
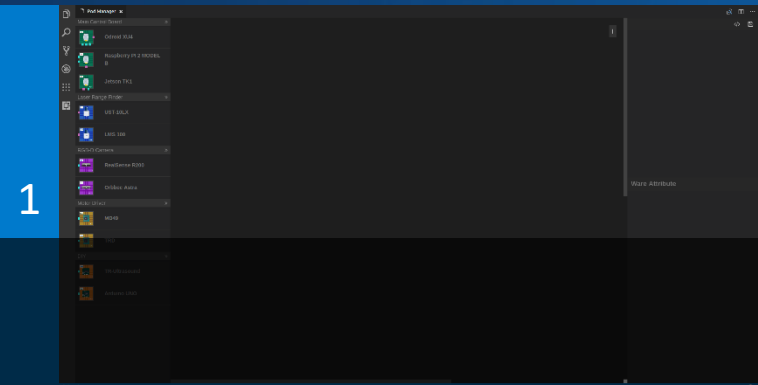


# RoboWare

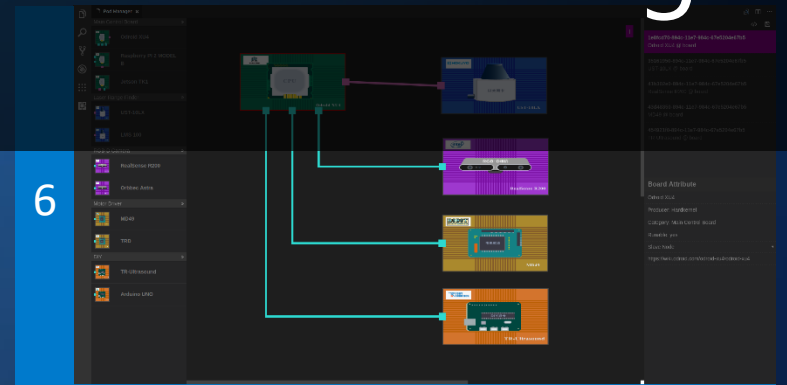
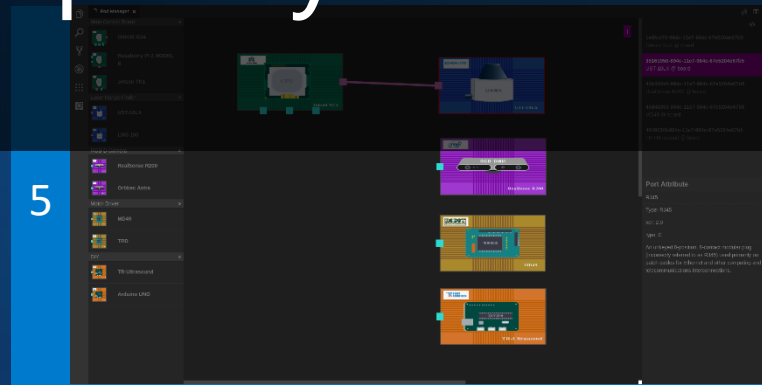
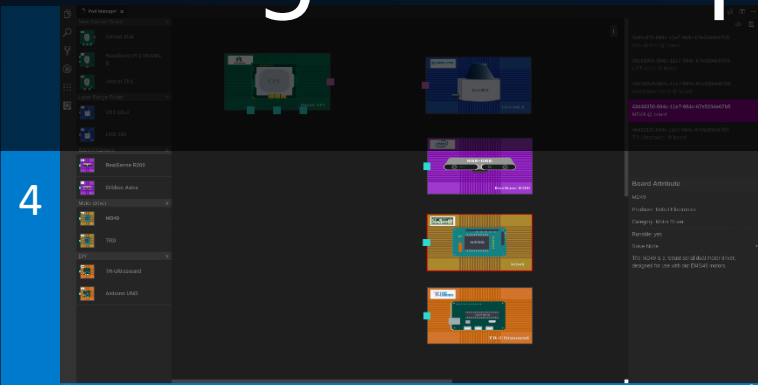
## The Value of Designer



# What is Designer?



Drag and drop, quickly finish the hardware design



# Designer features



Port checking



Hardware selection



Launch  
generate file



ROS package  
auto downloading





- Show All Components [Dropdown]
- Change Theme [Dropdown]
- Change Resolution [Dropdown]
- Reset Factory [Dropdown]
- Advanced Settings [Dropdown]

We are doing...

We are adding some common hardware components,  
and your contribution will make a big difference.

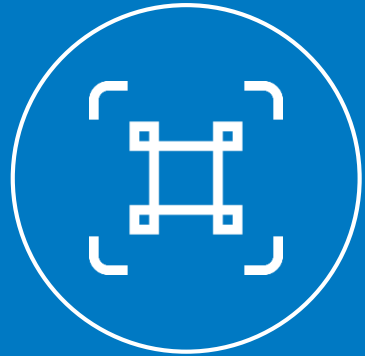


# RoboWare

## The Value of Studio

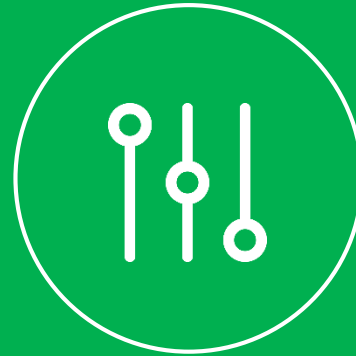


# What Can Studio Do?



Create and manage  
ROS workspace

Create and edit ROS  
codes



Local debugging

Remote deployment



Remote debugging

# Built-in ROS package management

— Convenient installation of ROS packages/ uninstall & check Wiki —

The screenshot displays two windows side-by-side. On the left is a terminal window titled 'ROS 包管理器' (ROS Package Manager) showing a list of packages. The 'move\_base' package is selected and highlighted in blue. It shows version '0.0.3-1 developed' and an 'INSTALL' button. Below it, the 'move\_base\_msgs' package is listed with version '1.12.13-0 maintained' and a 'UNINSTALL' button. On the right is a web browser window showing the ROS Wiki page for 'move\_base'. The page has a dark blue header with navigation links: 'Documentation', 'Browse Software', 'News', and 'Download'. Below the header, there are tabs for different ROS versions: 'electric', 'fuerte', 'groovy', 'hydro', 'indigo', 'jade', 'kinetic', and 'lunar' (which is selected). The page title is 'move\_base' and it includes a 'Documentation Status' link. The main content area features a 'Package Summary' section with three green checkmarks: 'Released', 'Continuous integration', and 'Documented'. Below this, there is a detailed description of the package's functionality and a list of maintainers and authors. A 'Contents' section is visible at the bottom of the page, listing '1. Nodes' and '1. move\_base'. On the right side of the browser window, there are additional links for 'Wiki', 'Distributions', 'ROS/Installation', 'ROS/Tutorials', 'RecentChanges', and 'move\_base'. There are also sections for 'Package Links' (Code API, Tutorials, FAQ, Changelog, Change List, Reviews), 'Dependencies (21)', 'Used by (1)', and 'Jenkins jobs (13)'. At the bottom of the browser window, there are links for 'Page', 'Immutable Page', 'Info', 'Attachments', and 'More Actions:'. The terminal window at the bottom shows the command prompt '-- NORMAL MODE --'.

ROS package one-click-(un)install | meta-package and package searching | integrated ROS Wiki browse

# Studio VS Traditional Development



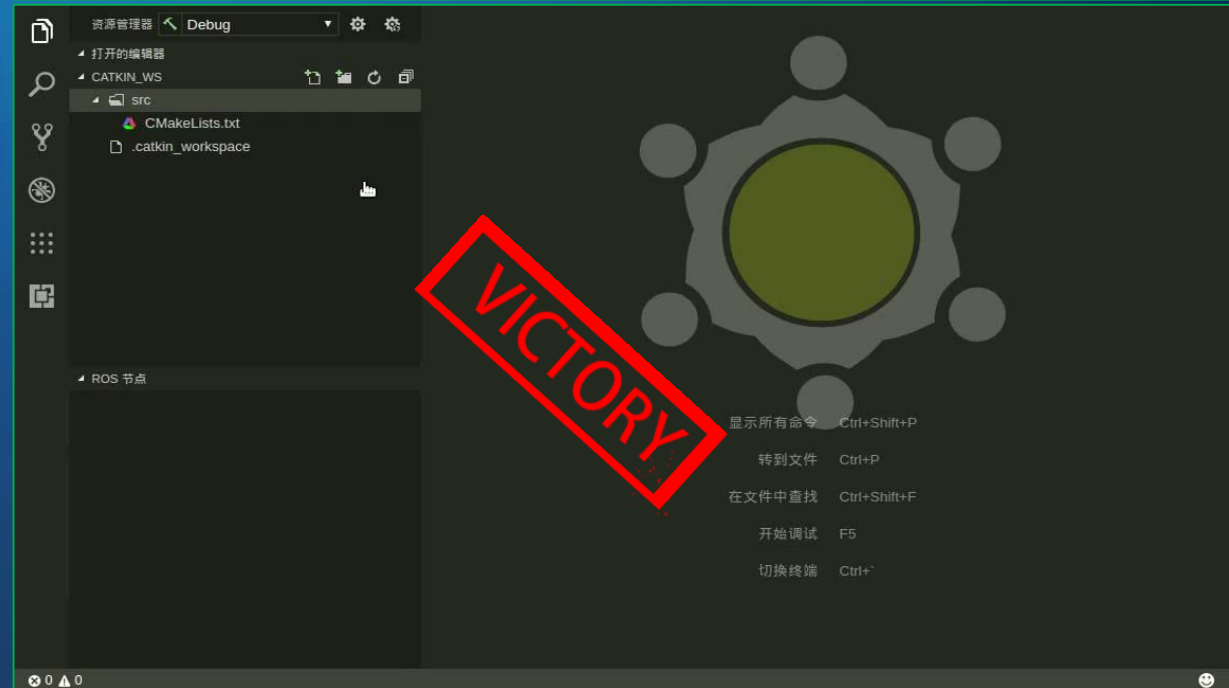
Develop with VIM

jeff@T440:~/catkin\_ws\$

I

**FINISH**

Develop with Studio







资源管理器 Remote Deploy

- 打开的编辑器
  - scan\_to\_angle.py src/dashgo\_calibration/src/dashgo\_...
- DASHGO\_ROBOWARE
  - dashgo\_calibration
    - launch
    - msg
    - src
      - dashgo\_calibration
        - calibrate.py
        - scan\_to\_angle.py
      - CMakeLists.txt
      - package.xml
      - readme.txt
    - dashgo\_description
    - dashgo\_driver
    - dashgo\_nav
- ROS 节点

```
34 #
35
36 # Author: Wim Meeussen
37
38 from __future__ import with_statement
39
40 import roslib; roslib.load_manifest('dashgo_calibration')
41 import yaml
42 import rospy
43 from sensor_msgs.msg import LaserScan
44 from dashgo_calibration.msg import ScanAngle
45 from math import *
46 from std_msgs.msg import Int16
47
48
49 class ScanToAngle:
50     def __init__(self):
51         self.min_angle = rospy.get_param('min_angle', -0.4)
52         self.max_angle = rospy.get_param('max_angle', 0.4)
53         self.pub = rospy.Publisher('scan_angle', ScanAngle)
54         self.sub = rospy.Subscriber('scan', LaserScan, self.scan_cb)
55         self.anglePub = rospy.Publisher('vertical_angle', Int16)
56
57
58     def scan_cb(self, msg):
59         angle = msg.angle_min
```

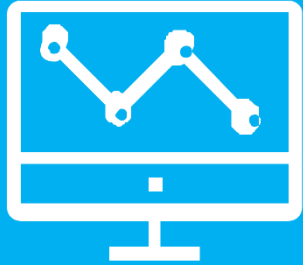
问题 输出 调试控制台 终端 任务



# RoboWare

## The Value of Viewer

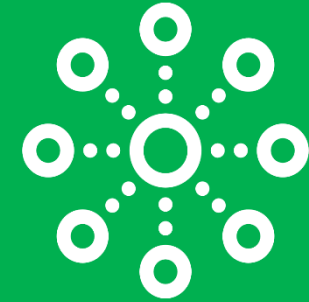
# Efficient development of CMS and UI



Visual interface editing



High-efficient development



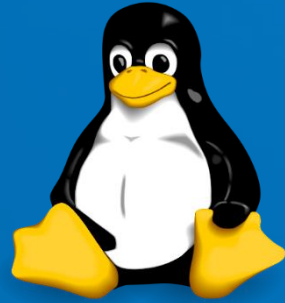
Quick response



# Cross platform



Windows



Linux



Mac

iOS

iOS

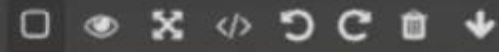


Android

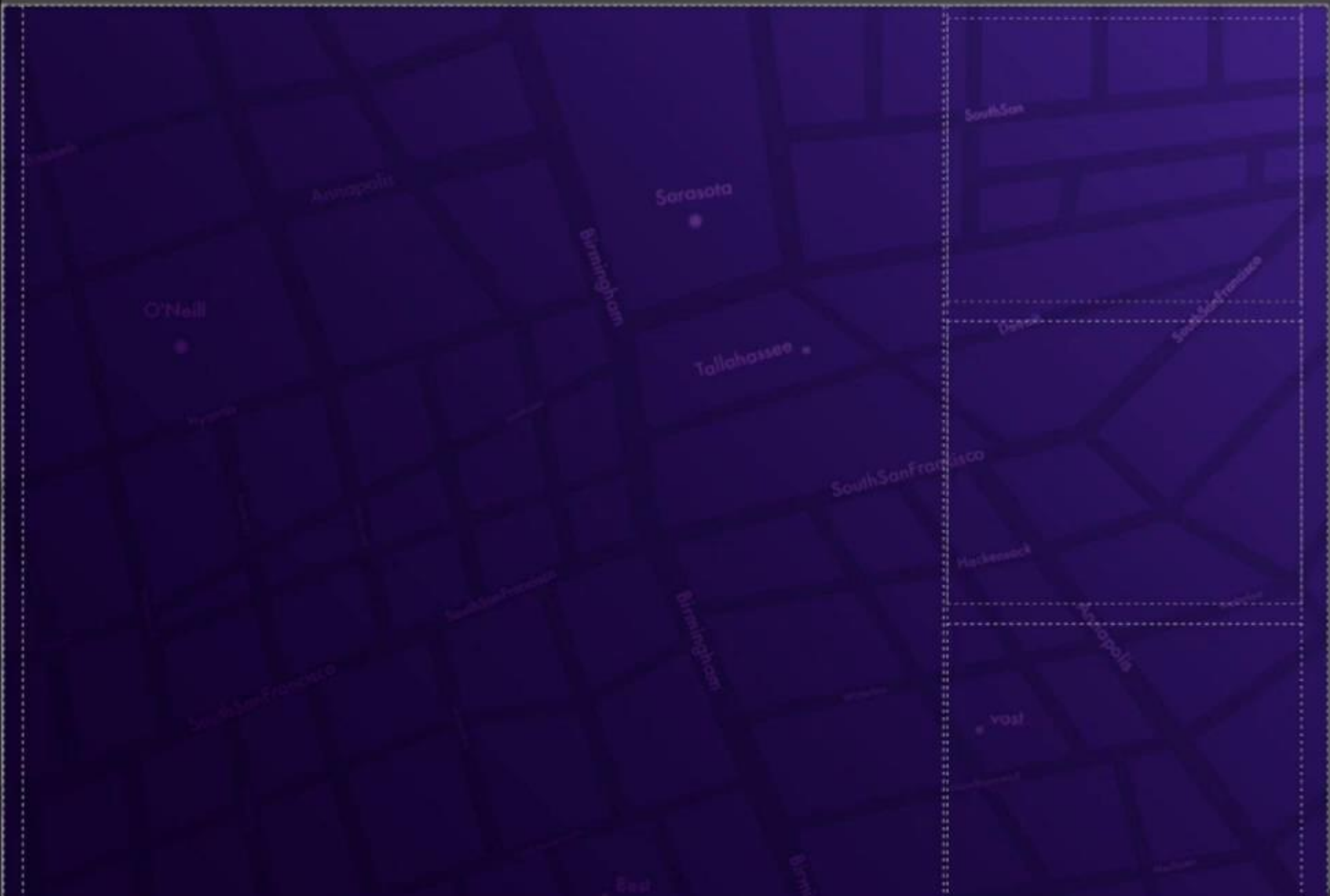
RoboWare Viewer Cross platform

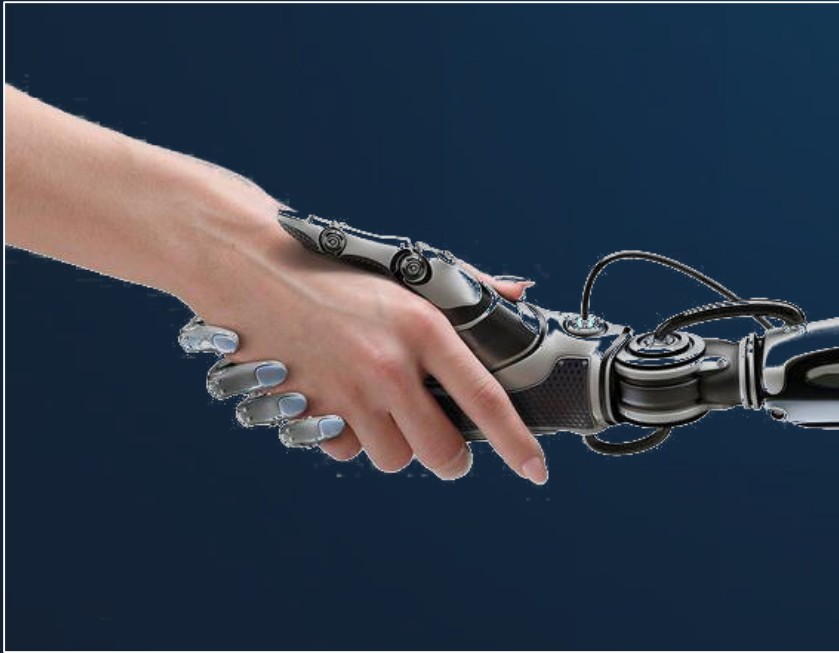
00:00:00:00

Device Desktop



Select an element before using Style Manager





We need you

You are welcome  
to provide components.





# Further Works

Thinking about the future

# Robo-X Projects



**RoboWare**  
Make creating robots easier



**RoboStore**  
Make creating robots easier



**RoboSchool**  
Make creating robots easier

Robot components store



Chinese version is available on <http://www.robostore.me>

# The Value of RoboStore



Good user experience  
Gathering professional  
hardware to support ROS



Precision of product description  
Label ROS compatibility



Provide application cases  
solutions in different scenarios



High quality service provider

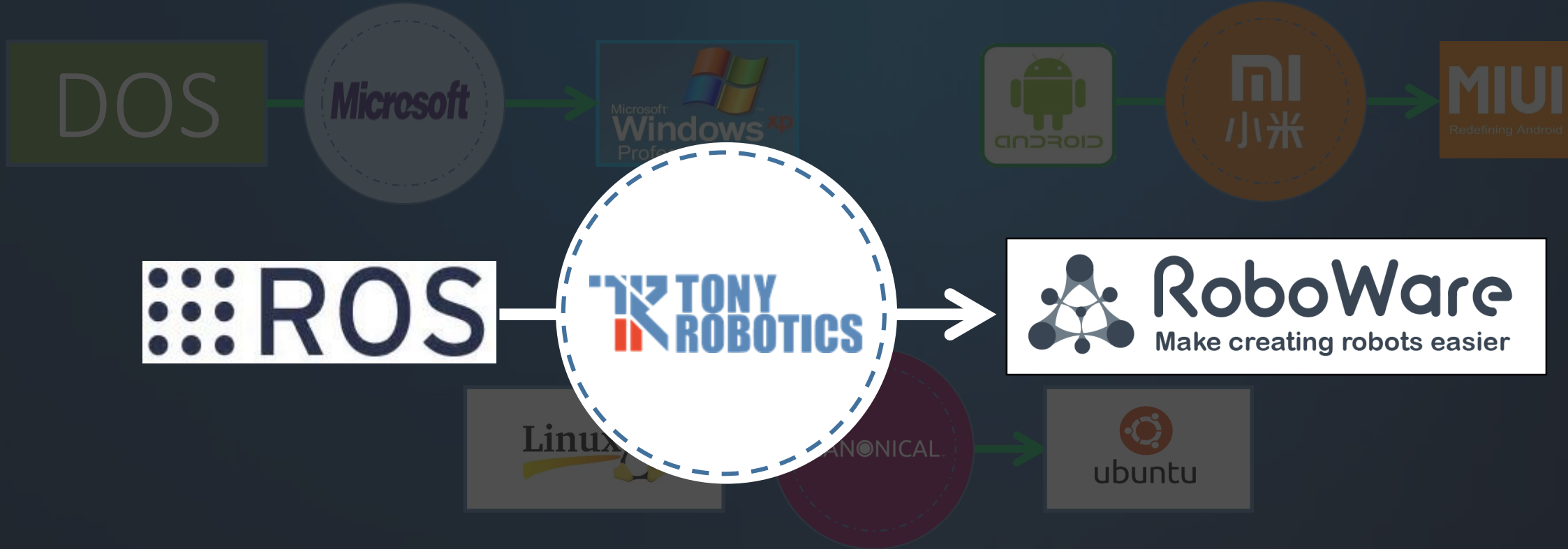


Join RoboStore

You are welcome to put your own  
components online to sell.

We will make it

# OPEN SOURCE



# We have a good wish

Contribute to the community, contribute to the robot industry.





济南汤尼机器人科技有限公司

Jinan Tony Robotics Co., Ltd.



There is no end to perfection, so just keep going!

# Thank you!



 Tony Wang

 +86-18605313834

 [info@tonyrobotics.com](mailto:info@tonyrobotics.com)

 [www.roboware.me](http://www.roboware.me)