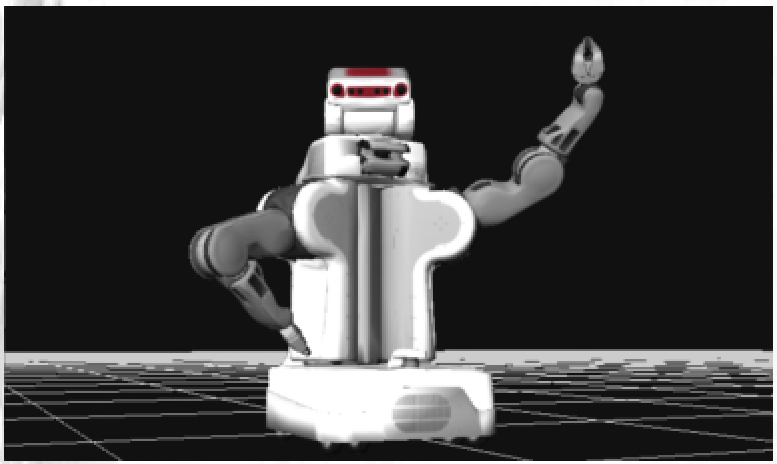
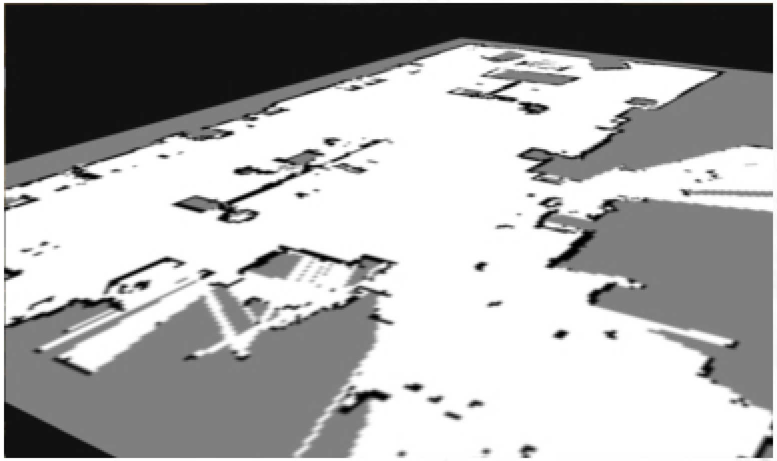
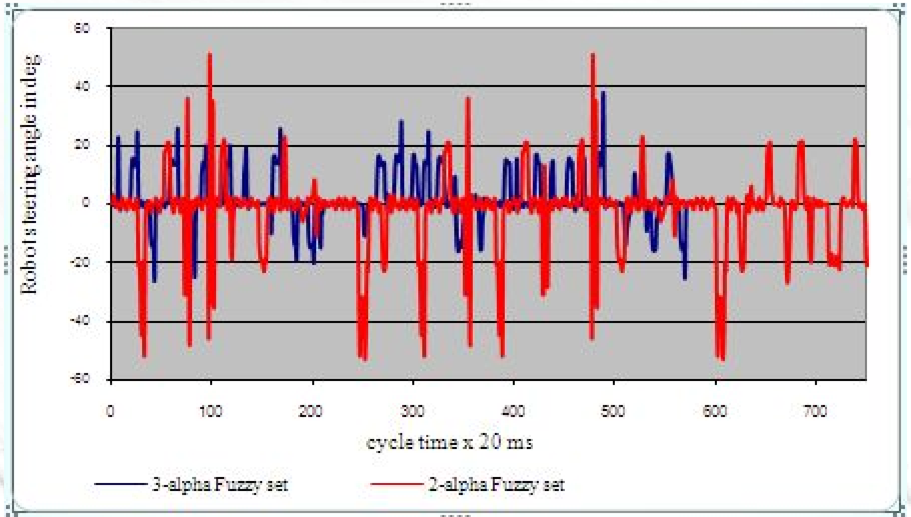
ROSDASH



Web-based Visual-programming-based Configurable Dashboard Platform for ROS





Why ROSDASH?

- Love robots, but have problems visualizing the data behind them?
- Use ROS, but tired of solving installation dependencies?
- Need dashboards specific for your research?

Merits of ROSDASH

- Web-based: Just open browser and work!
- Visual programming: Drag and drop!
- ROS: Support topic, service, and parameter!
- Configurable: Change parameters and refresh the page!
- Platform: Log in and create your own dashboard!
- Extensible: Write your js code and link to it!

How to Run?

- Roscore (talk to robots)
- Rosbridge (ROS => websocket)
- Roslibjs (websocket => js)
- ROSDASH (specify IP of rosbridge)

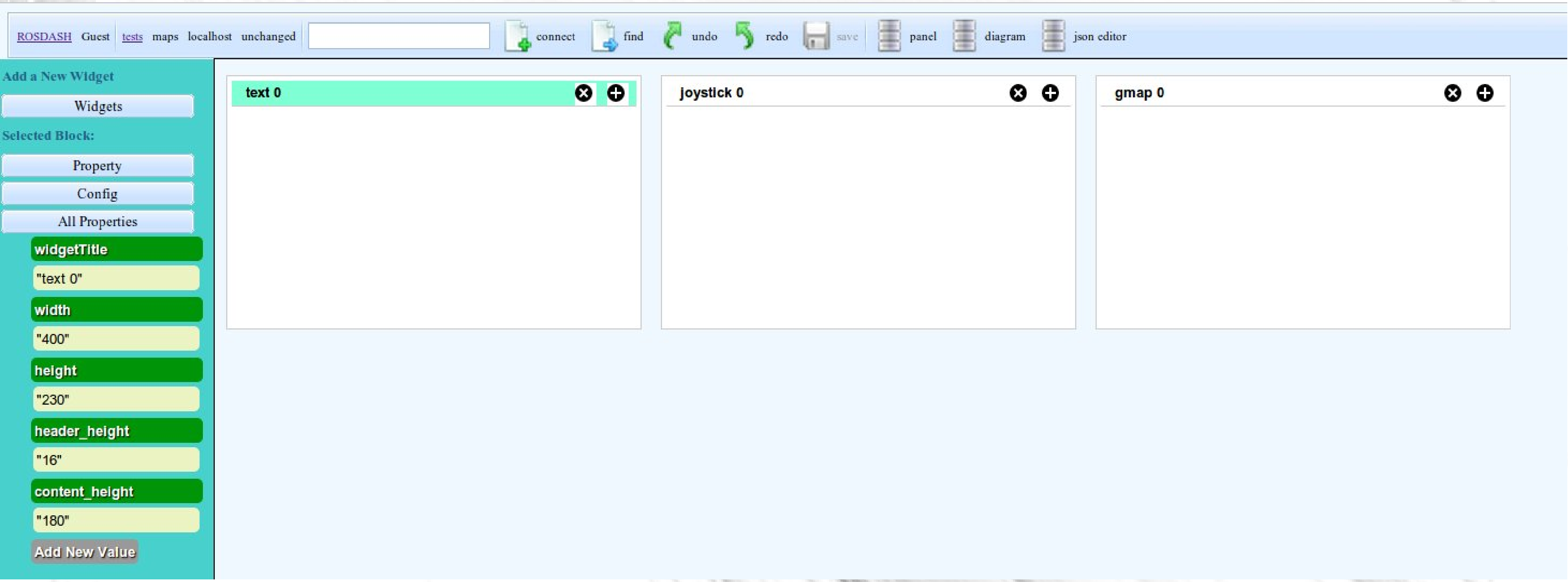
- Communication with robots works even off-line

How to Edit?

- 3 pages for each dashboard
- Panel: Run widgets with ROS
- Editor: Edit widgets
- Diagram: Edit diagram representing connection between widgets and ROS topics

Editor

- Add, move, or remove widgets
- Change size of widgets



widgetTitle
"text 0"

width
"400"

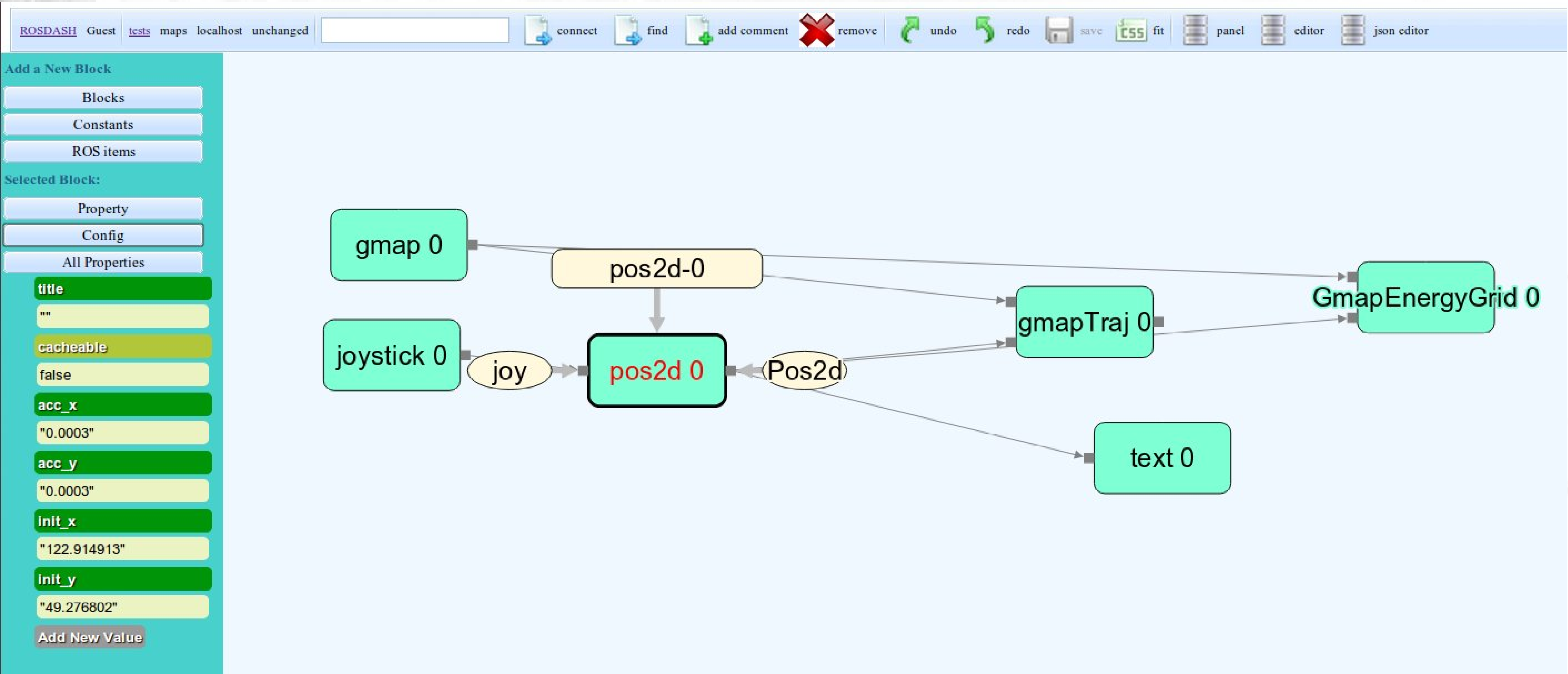
height
"230"

header_height
"16"

content_height
"180"

Diagram

- Flow network representing connection
- Add, move, or remove blocks
- Change config of blocks



title
""

cacheable
false

acc_x
"0.0003"

acc_y
"0.0003"

init_x
"122.914913"

init_y
"49.276802"

Dashboard

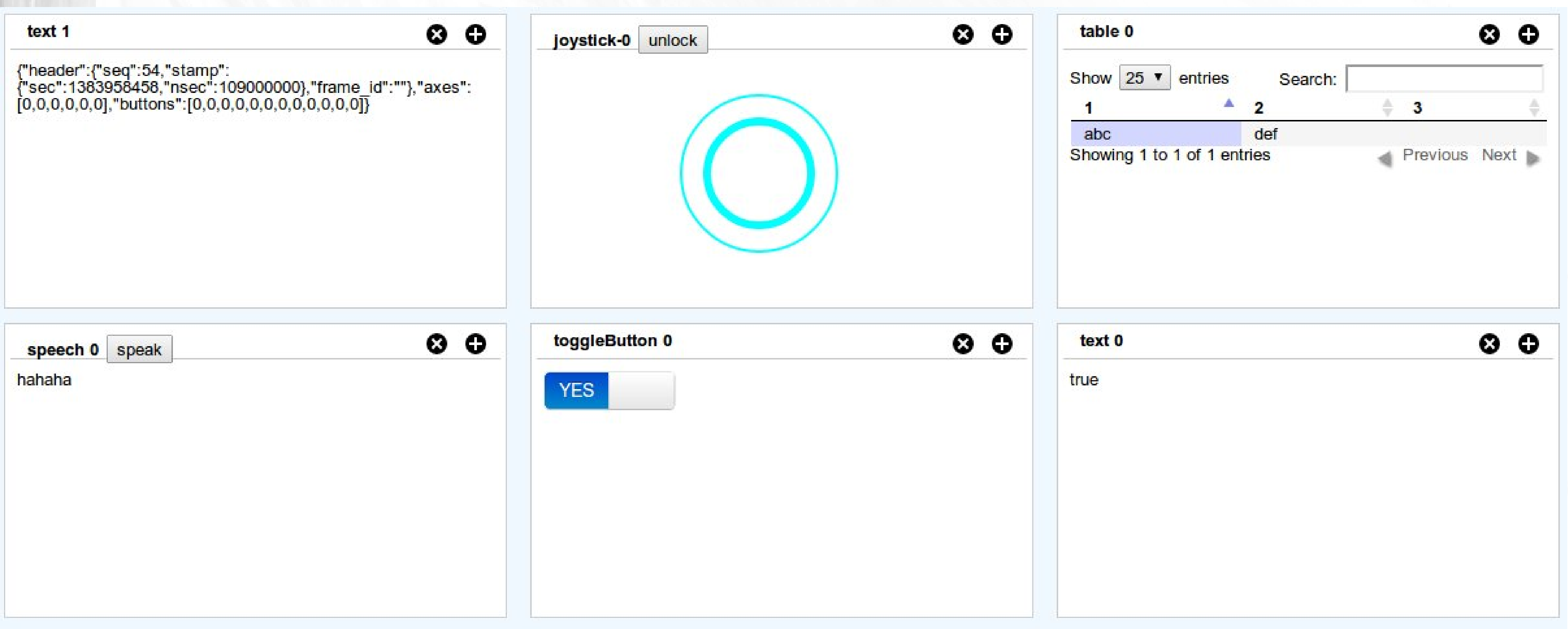
- Parse flow network
- All running widgets are independent
- Event emitter

User-defined Widgets

- Json, js, css files
- Anywhere (local, internet, github)
- Include json file path in your config file

A List of Widgets (1)

- Input: button, joystick
- Output: textbox, speech, table, chart



```
{"header":{"seq":54,"stamp":
{"sec":1383958458,"nsec":109000000},"frame_id":""},"axes":
[0,0,0,0,0,0],"buttons":[0,0,0,0,0,0,0,0,0,0,0,0]}
```

1	2	3
abc	def	

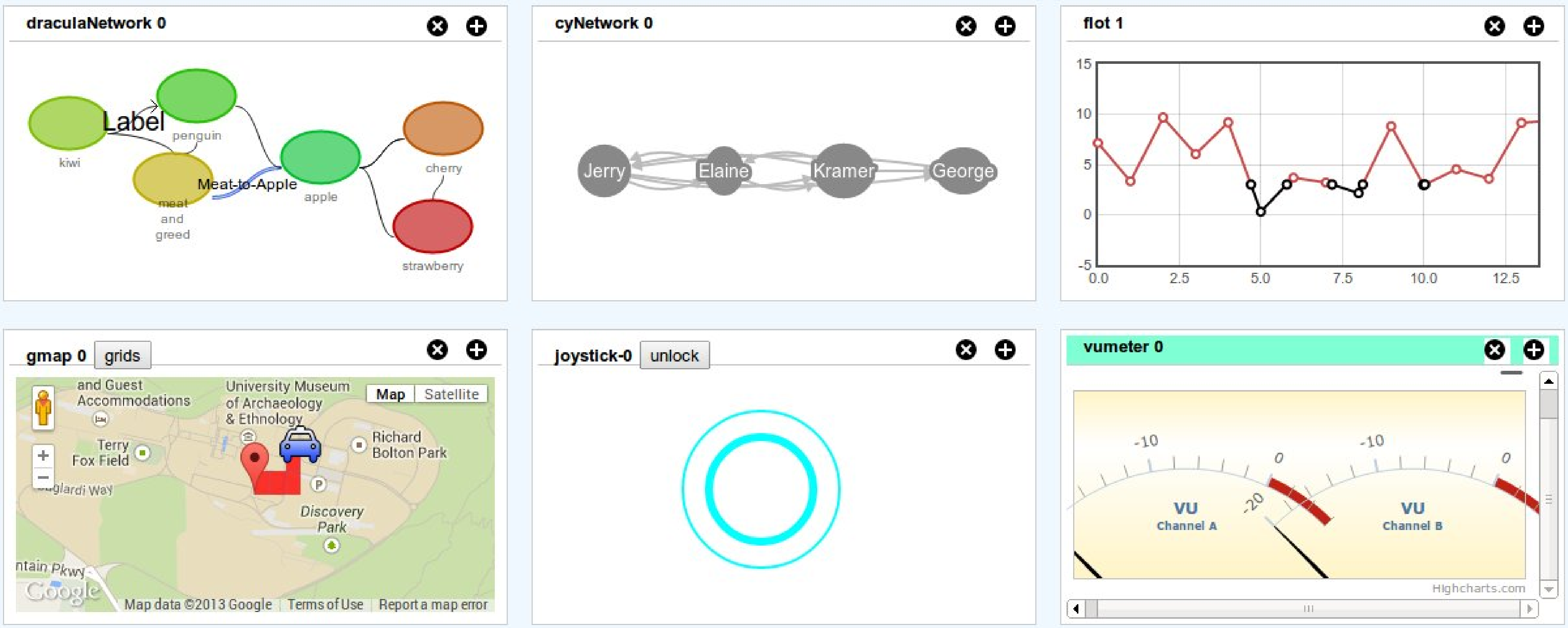
Showing 1 to 1 of 1 entries

hahaha

true

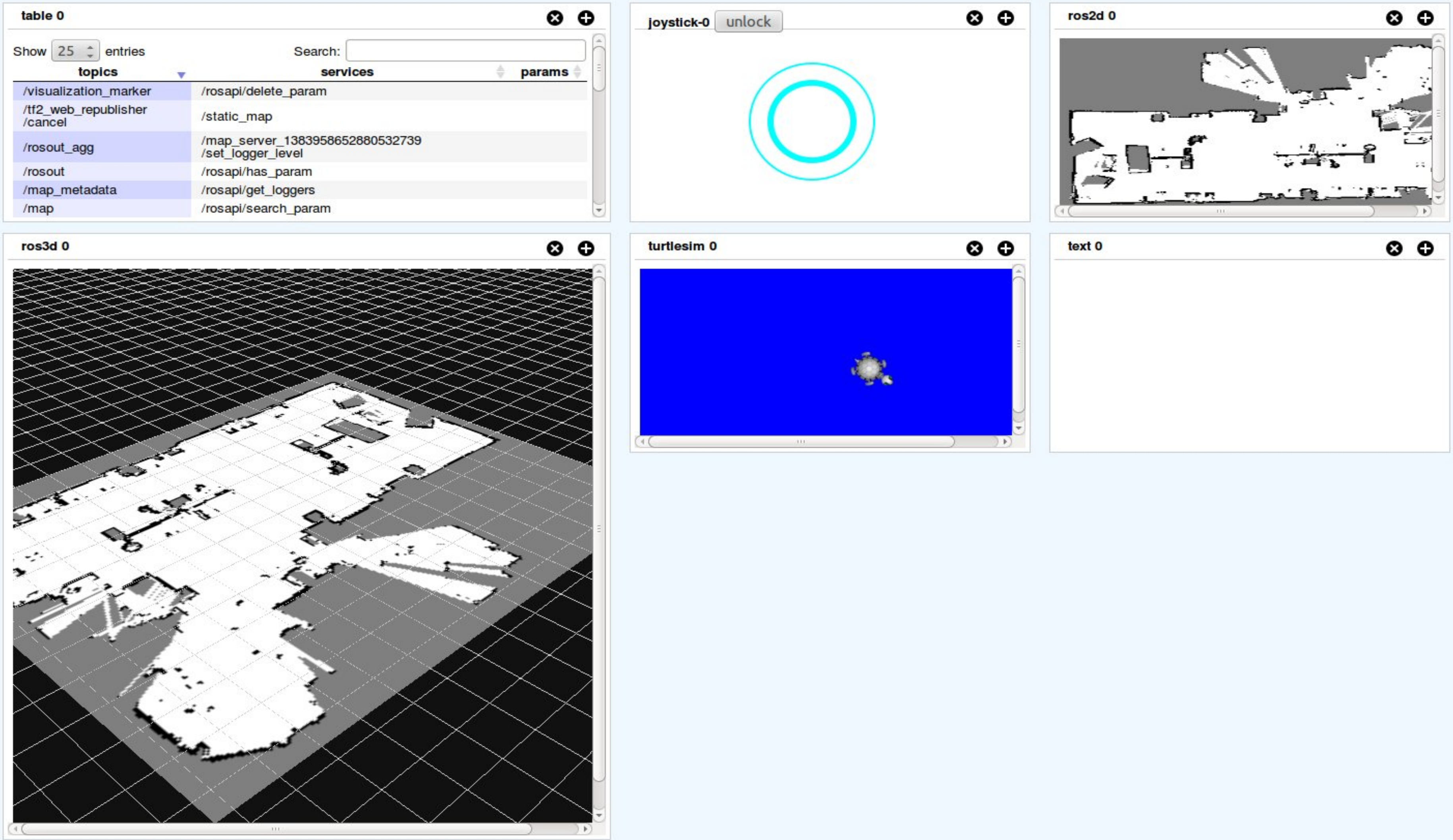
A List of Widgets (2)

- Scientific: vu meter, network graph, Google maps, plot



A List of Widgets (3)

- ROS: 2D model, 3D model, mjpeg, turtlesim



Show 25 entries Search:

topics	services	params
/visualization_marker	/rosapi/delete_param	
/tf2_web_republisher /cancel	/static_map	
/rosout_agg	/map_server_1383958652880532739 /set_logger_level	
/rosout	/rosapi/has_param	
/map_metadata	/rosapi/get_loggers	
/map	/rosapi/search_param	

A List of Widgets (4)

- Others: database, camera video, login with OpenID, json editor

Future Work

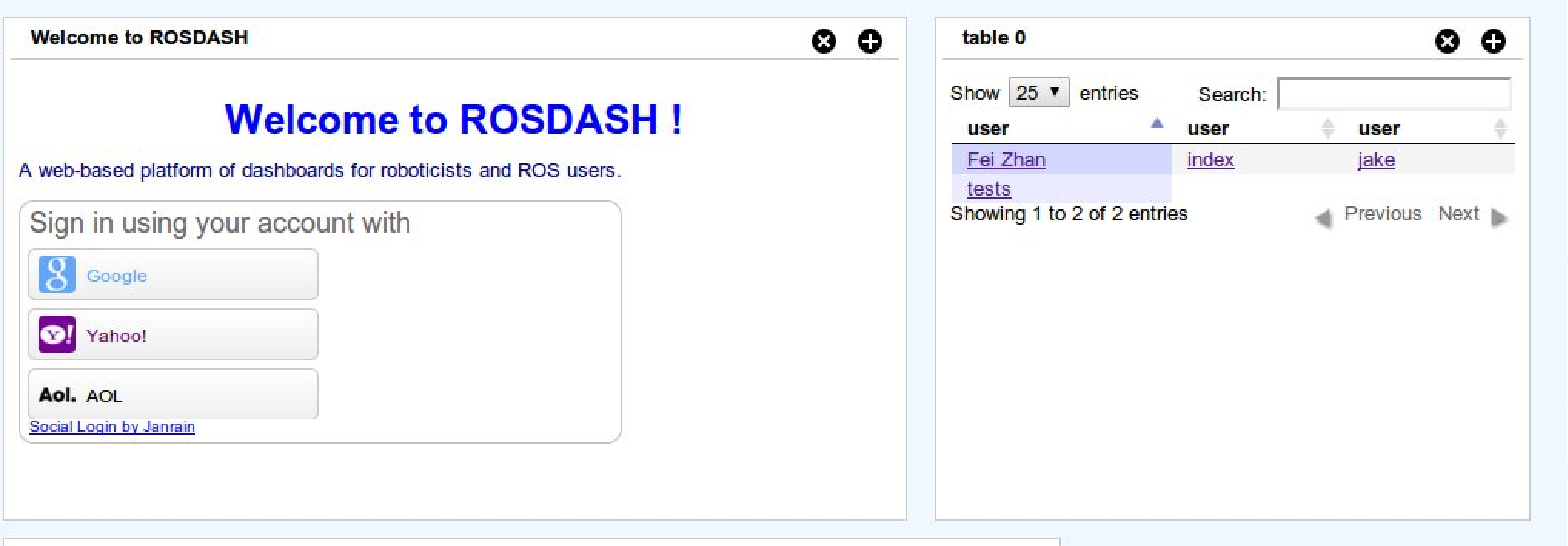
- Rosdash.com
- What is needed in our lab?
- What is needed in others' labs?
- Website security
- Discussion in NCFRN?

Steps to Create a Dashboard

1. Login with email account;
2. Go to your personal page;
3. Add a new page;
4. Open diagram page;
5. Pick some blocks to add;
6. Add some ROS topics from ROS item list, and connect them with widget blocks;
7. Open editor page;
8. Change the position of each widgets;
9. Run roscore and rosbridge;
10. Open panel page, and connect with rosbridge;
11. Run robots and see

Steps to Create a Dashboard (1)

- 1. Login with email account;



Welcome to ROSDASH

Welcome to ROSDASH !

A web-based platform of dashboards for roboticists and ROS users.

Sign in using your account with

table 0

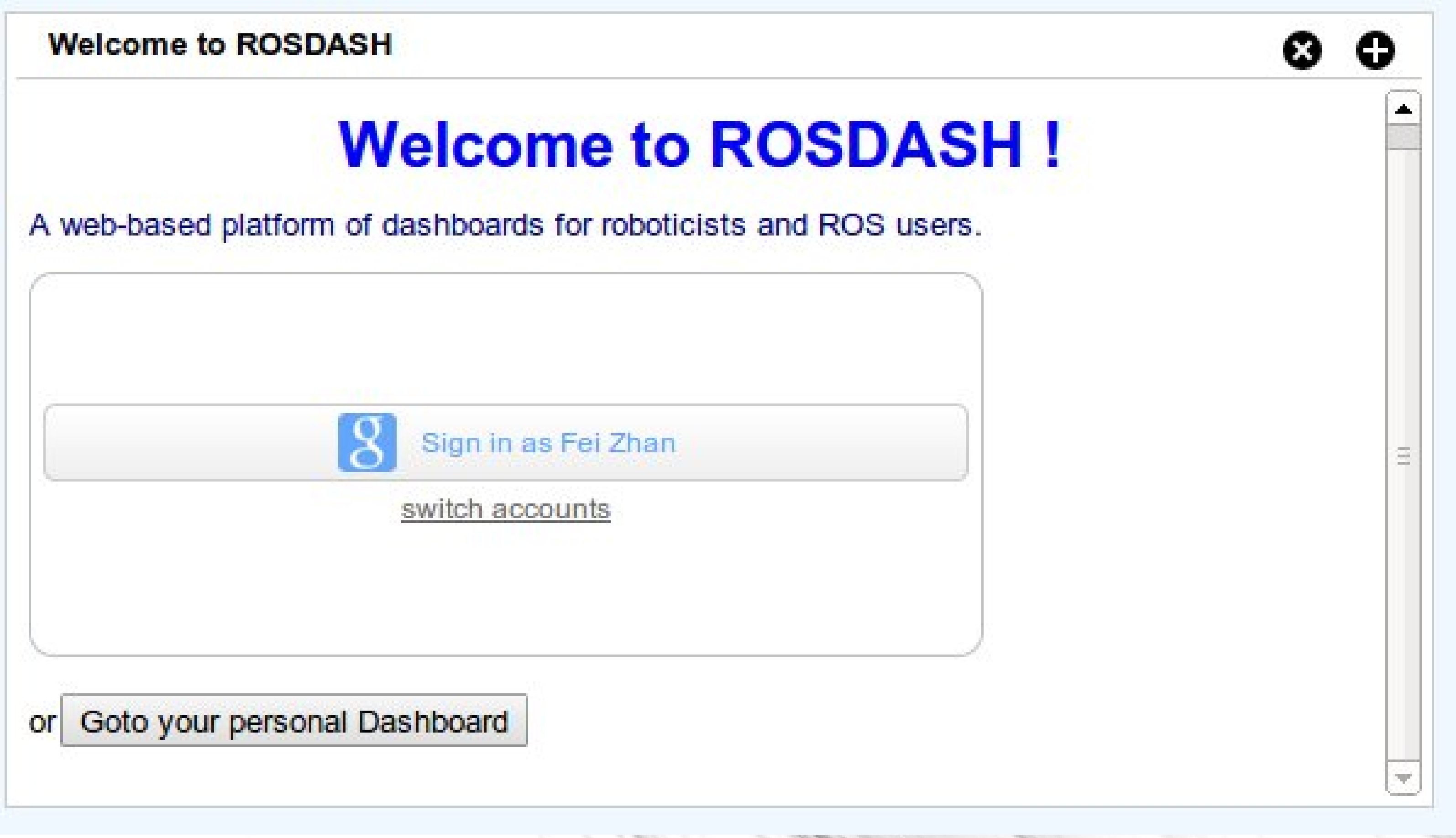
Show 25 entries Search:

user	user	user
Fei Zhan	index	jake
tests		

Showing 1 to 2 of 2 entries

Steps to Create a Dashboard (2)

- 2. Go to your personal page;



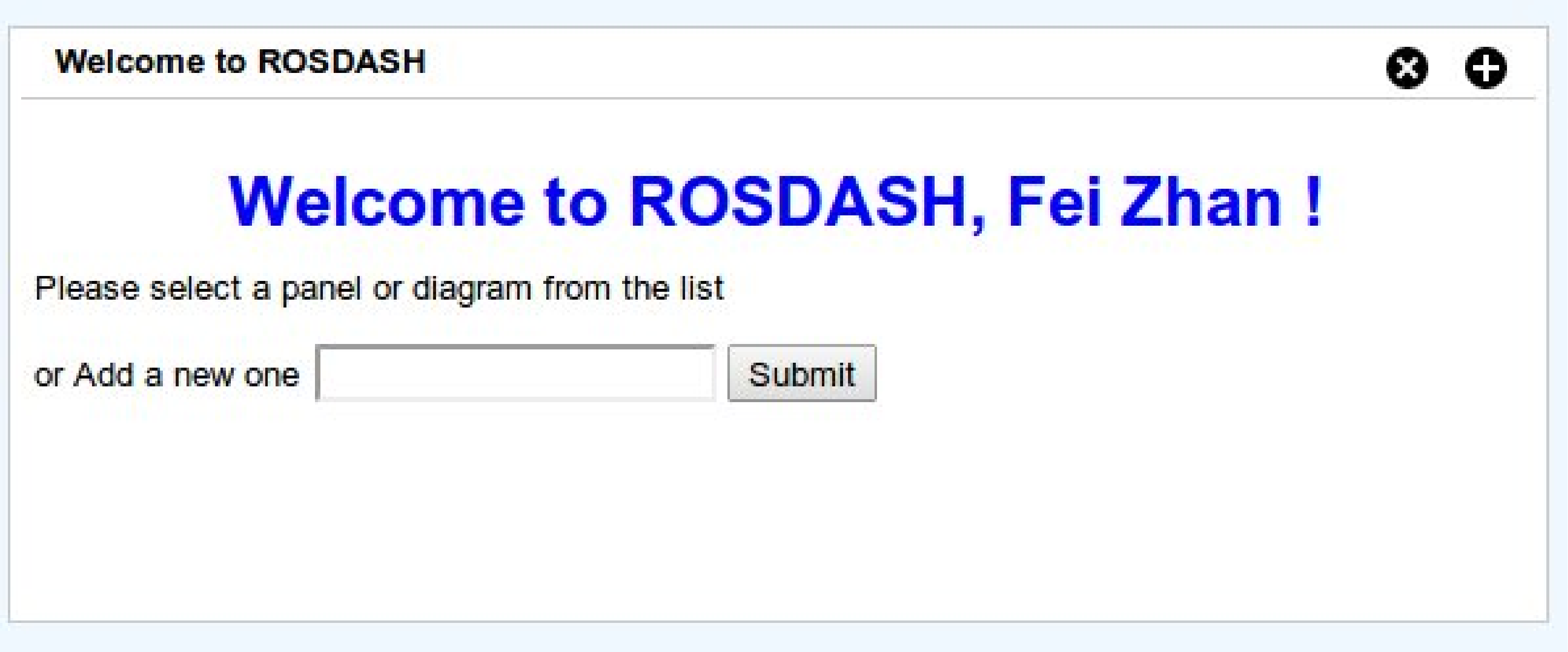
Welcome to ROSDASH

Welcome to ROSDASH !

A web-based platform of dashboards for roboticists and ROS users.

Steps to Create a Dashboard (3)

- 3. Add a new page;



Welcome to ROSDASH

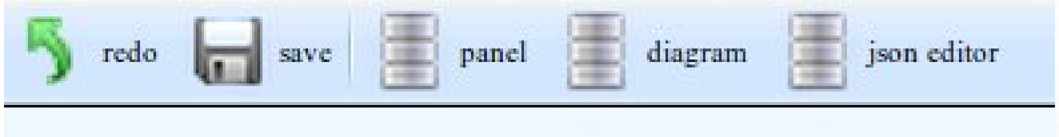
Welcome to ROSDASH, Fei Zhan !

Please select a panel or diagram from the list

or Add a new one

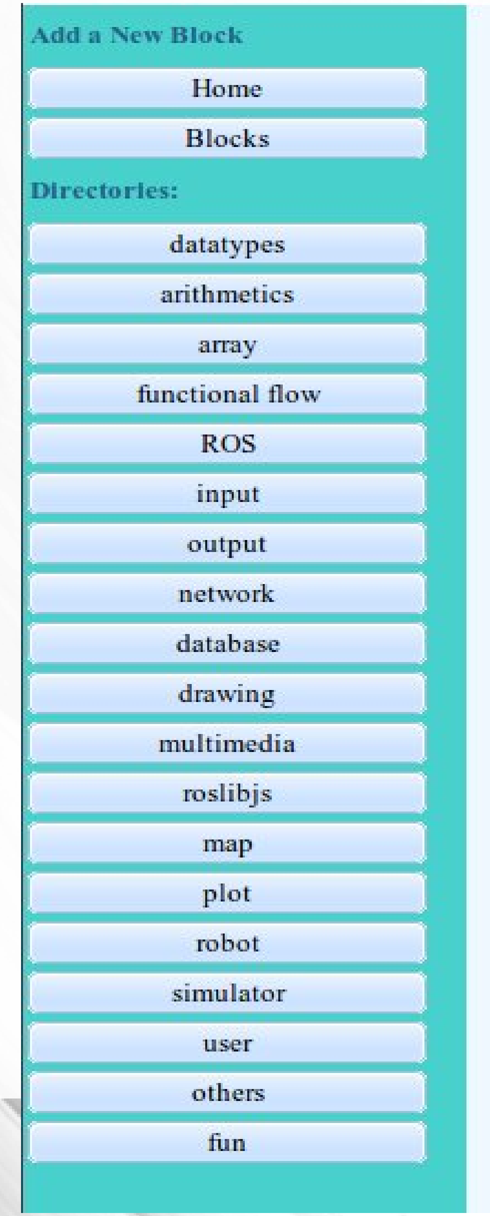
Steps to Create a Dashboard (4)

- 4. Open diagram page;



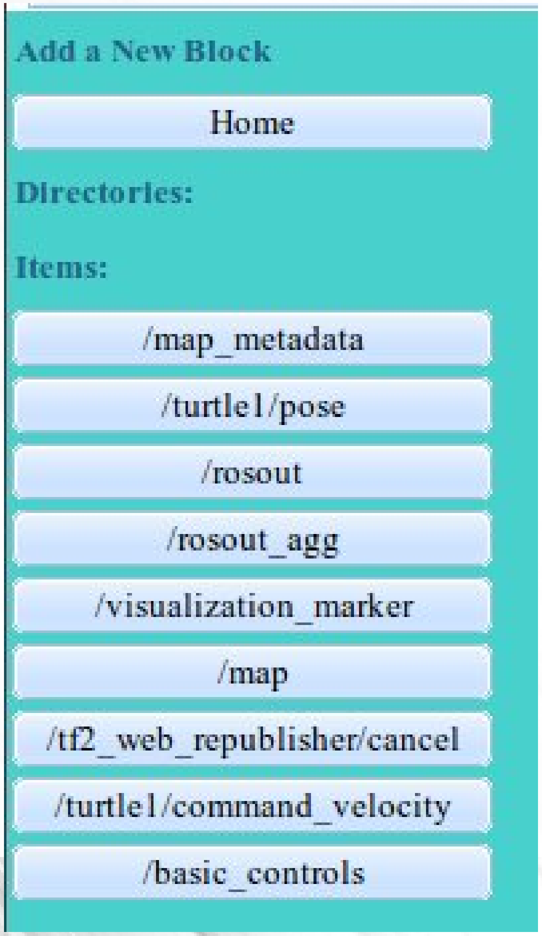
Steps to Create a Dashboard (5)

- 5. Pick some blocks to add;



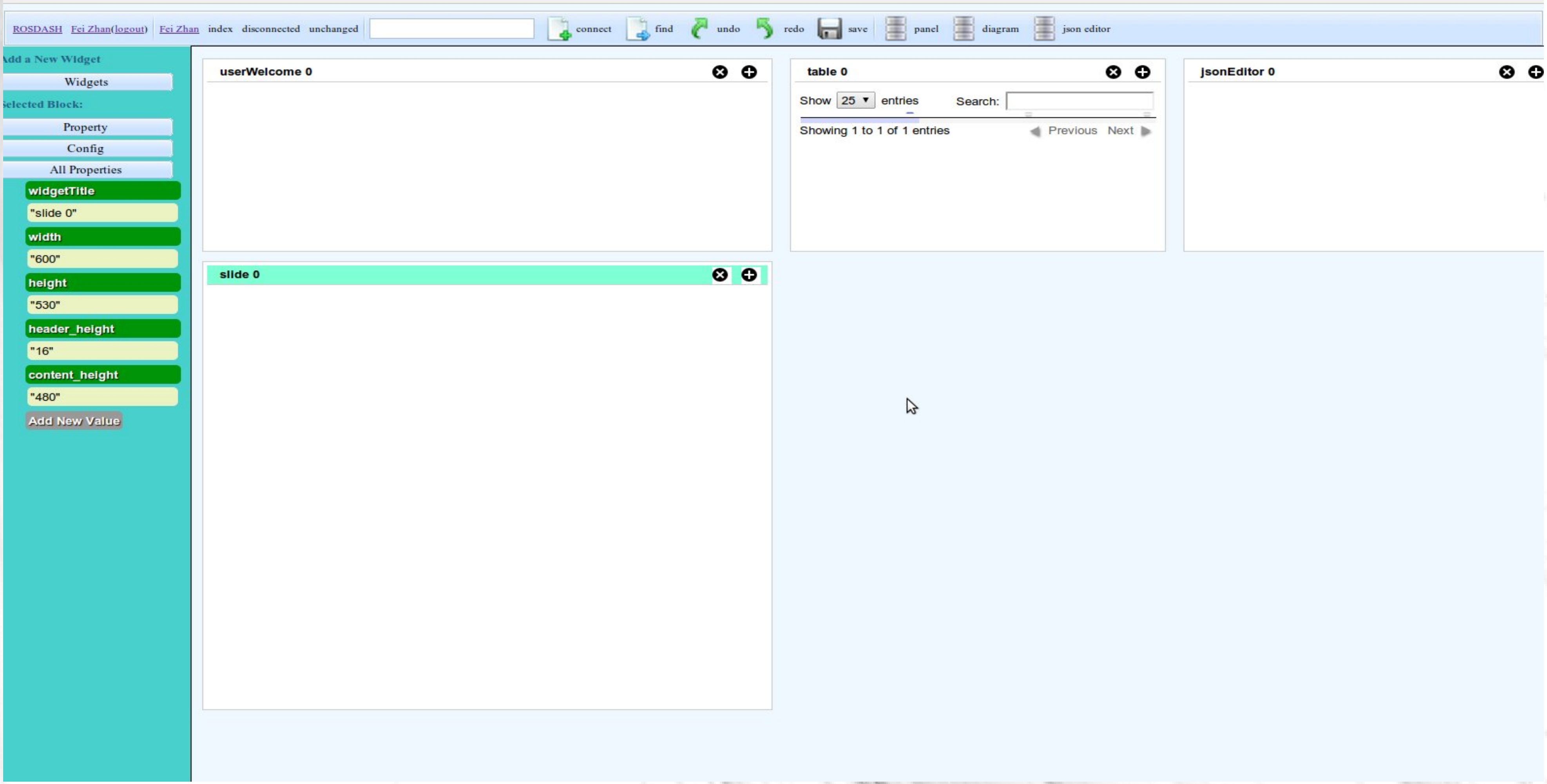
Steps to Create a Dashboard (6)

- 6. Add some ROS topics from ROS item list, and connect them with widget blocks;



Steps to Create a Dashboard (8)

- 8. Change the position of each widgets in the editor page;



widgetTitle: "slide 0"

width: "600"

height: "530"

header_height: "16"

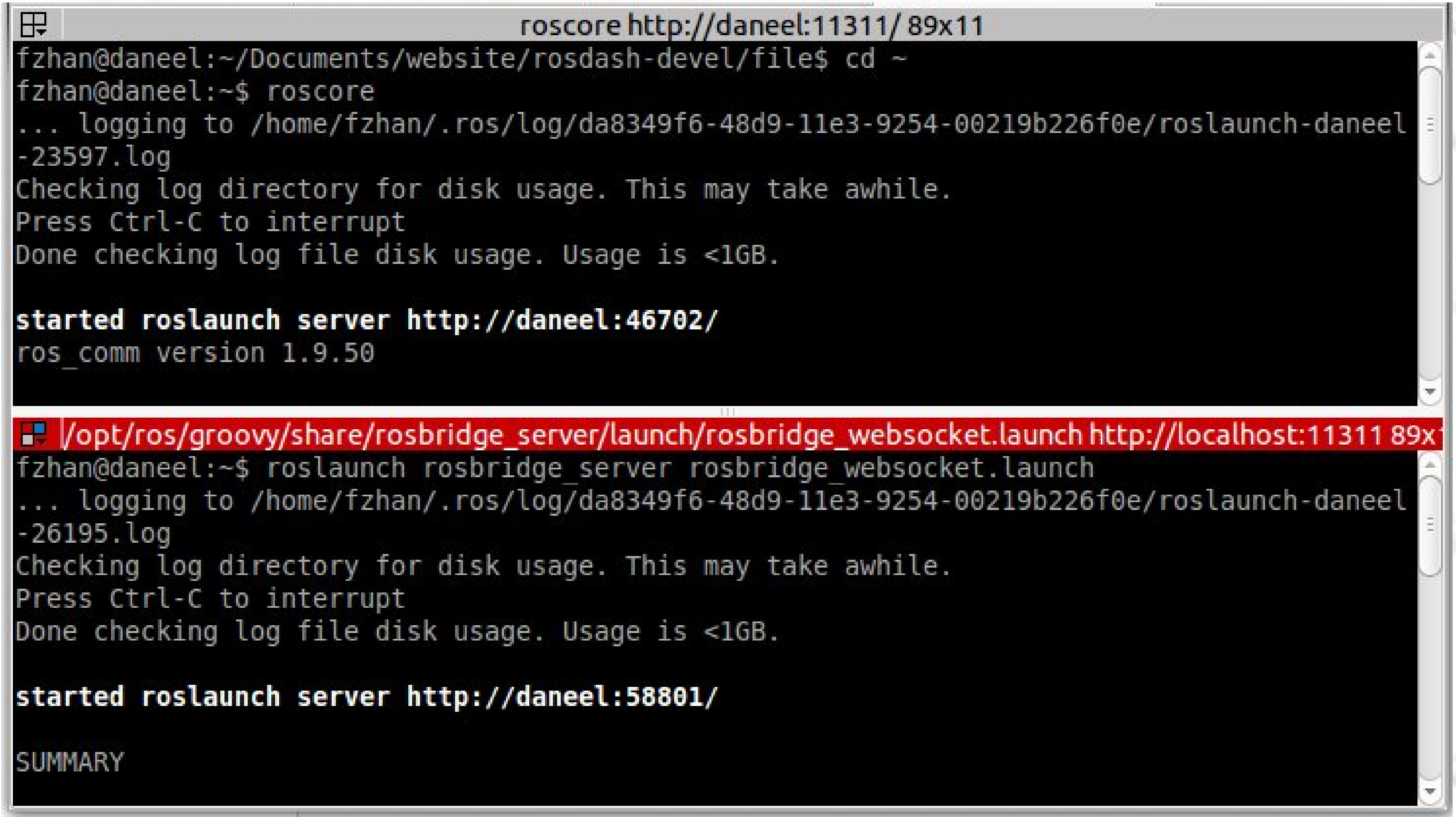
content_height: "480"

Show 25 entries Search:

Showing 1 to 1 of 1 entries

Steps to Create a Dashboard (9)

- 9. Run roscore and rosbridge;



roscore http://daneel:11311/ 89x11

```
fzhan@daneel:~/Documents/website/rosdash-devel/file$ cd ~
fzhan@daneel:~$ roscore
... logging to /home/fzhan/.ros/log/da8349f6-48d9-11e3-9254-00219b226f0e/roslaunch-daneel
-23597.log
Checking log directory for disk usage. This may take awhile.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://daneel:46702/
ros_comm version 1.9.50
```

/opt/ros/groovy/share/rosbridge_server/launch/rosbridge_websocket.launch http://localhost:11311 89x

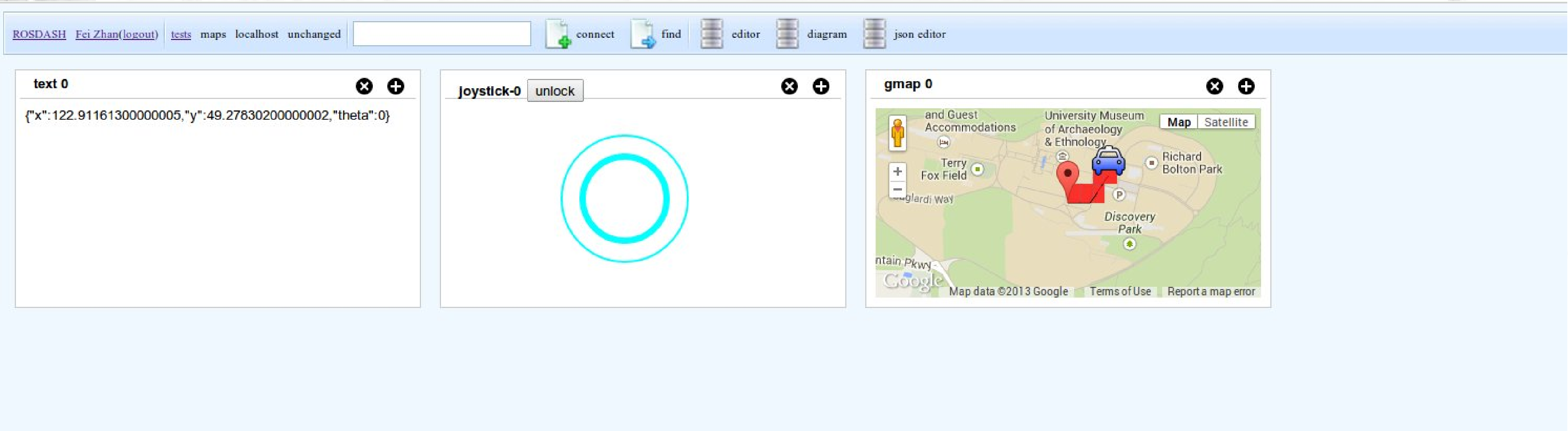
```
fzhan@daneel:~$ roslaunch rosbridge_server rosbridge_websocket.launch
... logging to /home/fzhan/.ros/log/da8349f6-48d9-11e3-9254-00219b226f0e/roslaunch-daneel
-26195.log
Checking log directory for disk usage. This may take awhile.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://daneel:58801/

SUMMARY
```

Steps to Create a Dashboard (10)

- 10. Open panel page, and connect with rosbridge;
- 11. Run robots and see



```
{"x":122.91161300000005,"y":49.27830200000002,"theta":0}
```