

Primer avance del proyecto de curso

PCE

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Containerización de SDV SLAM aplicación

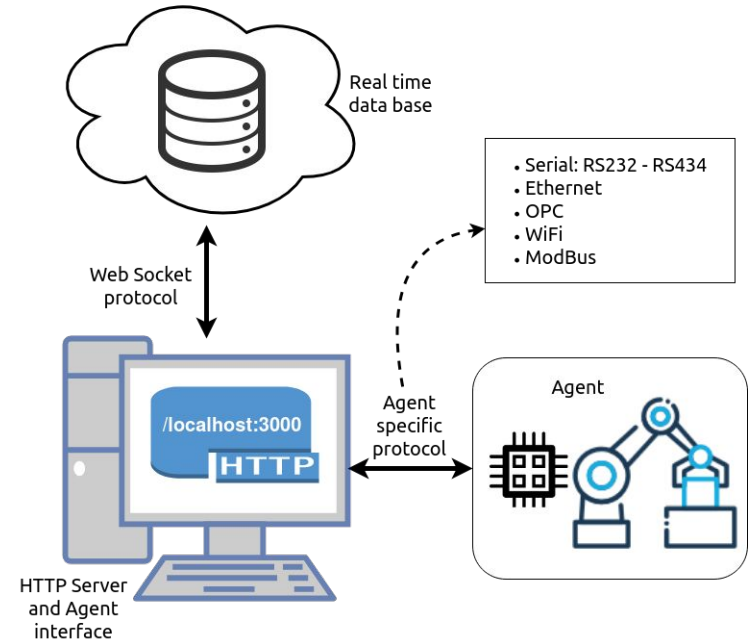


PRIA-UN

Plataforma Robótica de Integración y Automatización

Diseño, monitorización, supervisión y control de tareas o procesos en tiempo real

- Integrar los equipos de LabFabEx
 - Robot Motoman
 - Torno Tipo Suizo
 - Grúa Maya
 - SDV-UN
- Base de datos de tiempo real (Firebase)

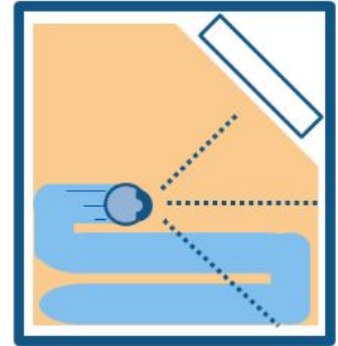


Uso de SDV SLAM

- Movimiento del SDV
- Tarea de localización
- Tarea de mapeo



Without SLAM:
Cleaning a room randomly.



With SLAM:
Cleaning while understanding the room's layout.

<https://youtube.com/clip/UgkxF40uXSluCEXgykvKg1DToejlXWkJG35>

SDV SLAM application

Requerimientos:

- Ros Melodic. (2018-05-23)
- Python 2.7. (2010-07-03)
- OpenCV 3.3. (2017-08-03)

Intel realsense:

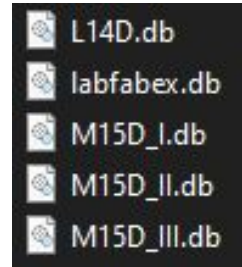
- realsense r200 ROS node

RTAB-Map node:

- rtabmap_ros



MAPAS



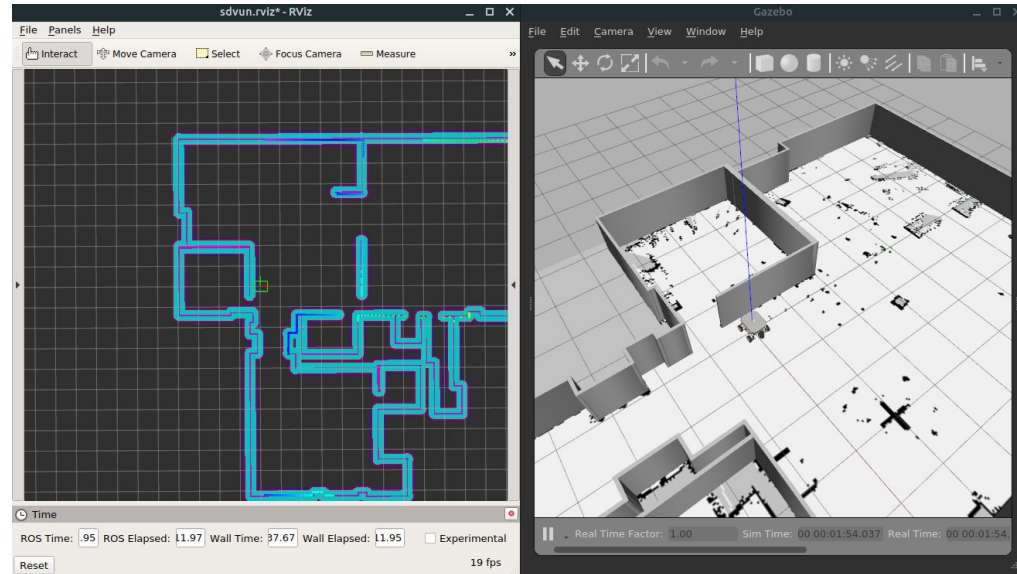
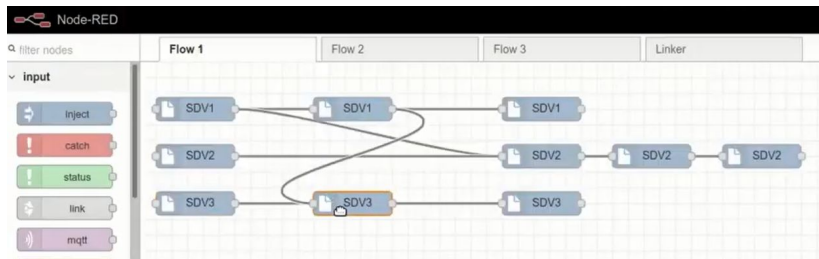
sdvun_sim y PRIA

Simulación de SDVUN

- Gazebo
- RVIZ

Uso de PRIA UN

- Definir poses y flujos de ejecución



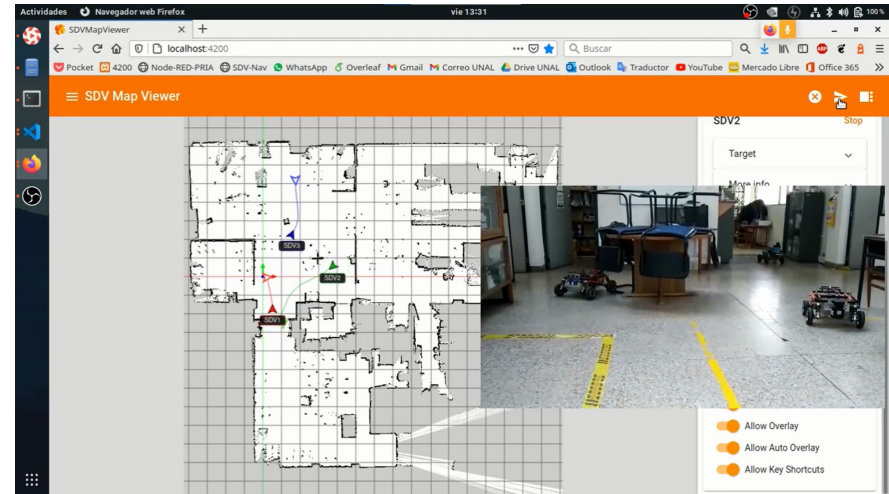
SDV-UN-Web-App

- Conexión SSH con el SDV
- Acceder al SDV con sus credenciales por la Web
- Uso interactivo del mapa

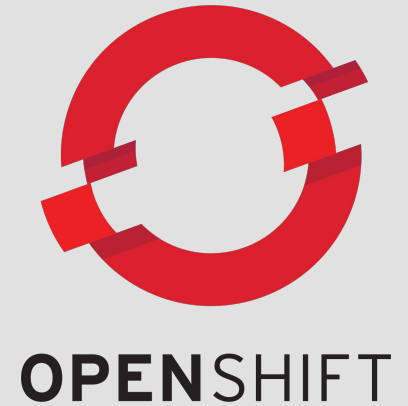
The screenshot displays the SDV-UN-Web-App interface. On the left, a terminal window shows logs for a ROS node, including messages like "costmap cleaned", "Optimization failed - Ban", and "Calculation of Distance between bubble and nearest obstacle failed". Below the terminal is a camera feed of a robotic vehicle in a laboratory setting. The main part of the interface is a web browser showing a map titled "Navegación por el Laboratorio". The map displays a 2D occupancy grid with a robot's current position marked by an orange triangle. To the right of the map, there are control panels. The first panel, "Posición actual del SDV", shows coordinates X: 0.80, Y: 5.83, Z: 0.00, W: 0.80. Below it is a section "Enviar SDV a posición predefinida" with a dropdown menu set to "Celda Experimental" and an "Enviar" button. The next section, "SDV a posición distinta", has input fields for X, Y, and W, with X set to 0, Y to 0, and W to 1, followed by an "Enviar" button. The final section, "Operación manual por teclado", contains four directional arrow buttons (up, down, left, right) and a checkbox labeled "Activar teleoperación" which is checked. At the bottom of the web interface, a status bar indicates "Conectado al servidor websocket del SDV".

Sdv Map Viewer

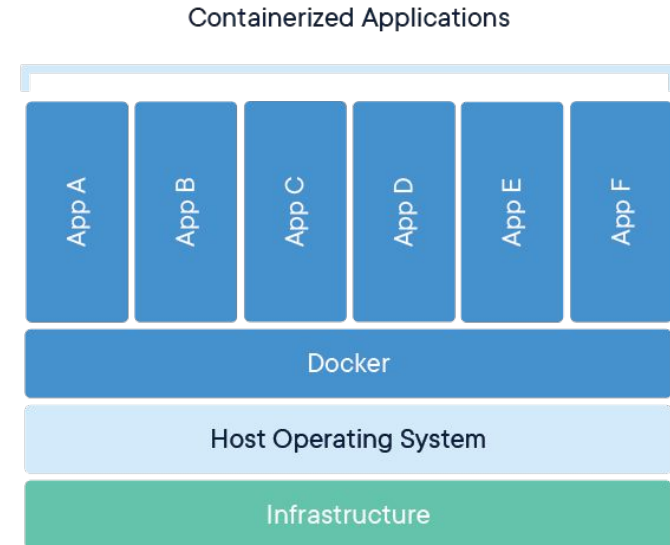
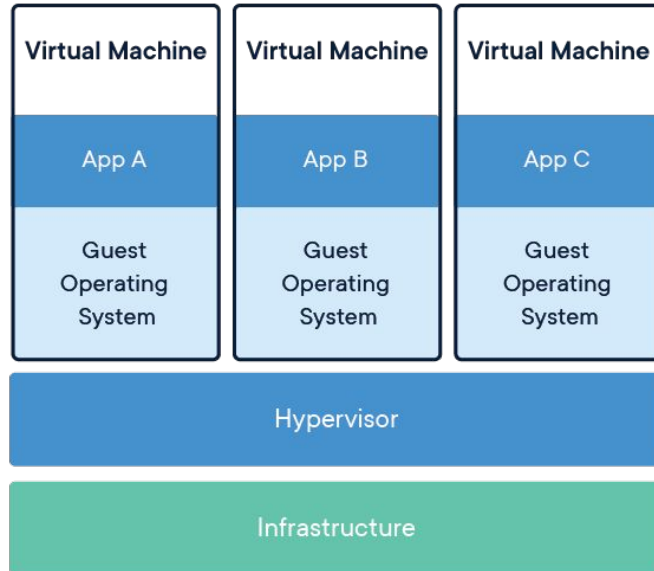
- Uso de SDVUN en una GUI robusta
- Enfocada en la teleoperación
- Requerimientos
 - http server
 - sdv-nav-service
- Extender PRIA-UN-Webapp



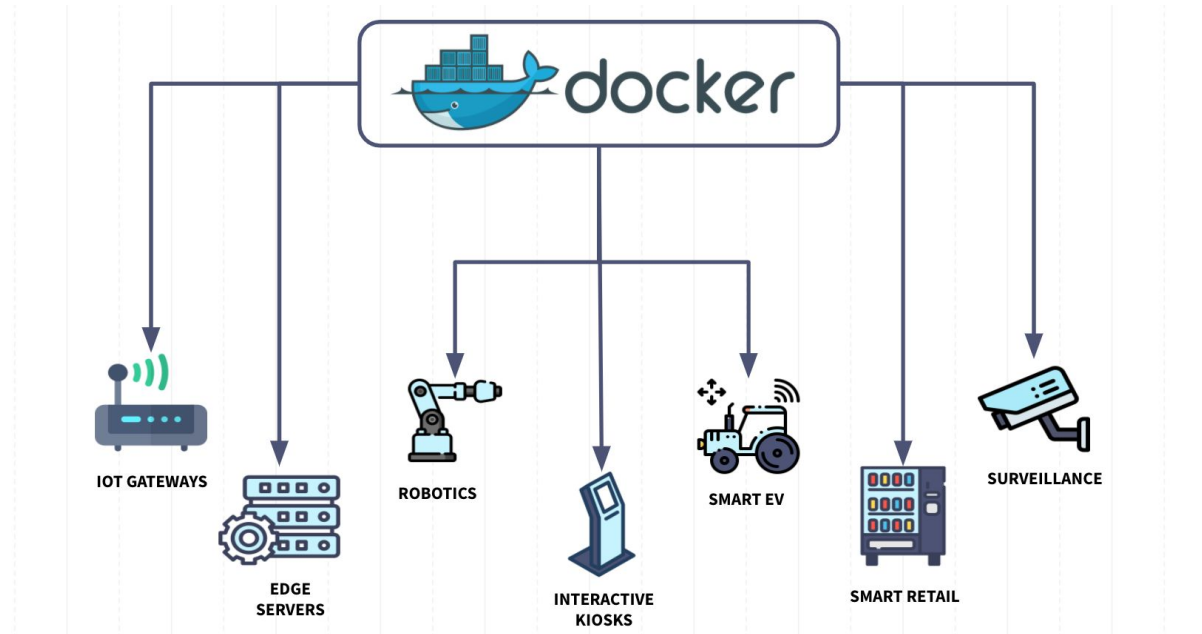
Containerización














































Containers vs VM



Uso de Docker en IIOT



Aplicaciones con varios contenedores

<input type="checkbox"/>	Name	Image	Status	Port(s)	Last started	Actions
<input type="checkbox"/>	 crazy_germain 0d04bd2bcd2b 	node:18-alpine	Exited (1)	3000:3000 	9 hours ago	  
<input type="checkbox"/>	 eager_hypatia d4524de11ac1 	mysql:8.0	Exited		9 hours ago	  
<input type="checkbox"/>	 stupefied_cray dd4f249c0a8e 	getting-started	Exited	3000:3000 	10 hours ago	  
<input type="checkbox"/>	 goofy_einstein a6a5496f0343 	ubuntu	Exited		10 hours ago	  
<input type="checkbox"/>	 kind_elbakyan d76b8cb5ac52 	docker/getting-started	Exited	80:80 	10 hours ago	  
<input type="checkbox"/>	 app	-	Running (2/2)		29 seconds ago	  
<input type="checkbox"/>	 app-1 36e20f644e9a 	node:18-alpine	Running	3000:3000 	29 seconds ago	  
<input type="checkbox"/>	 mysql-1 907ecf6f07ca 	mysql:8.0	Running		29 seconds ago	  

Aplicaciones con varios contenedores

☐ item 1

☐ prueba

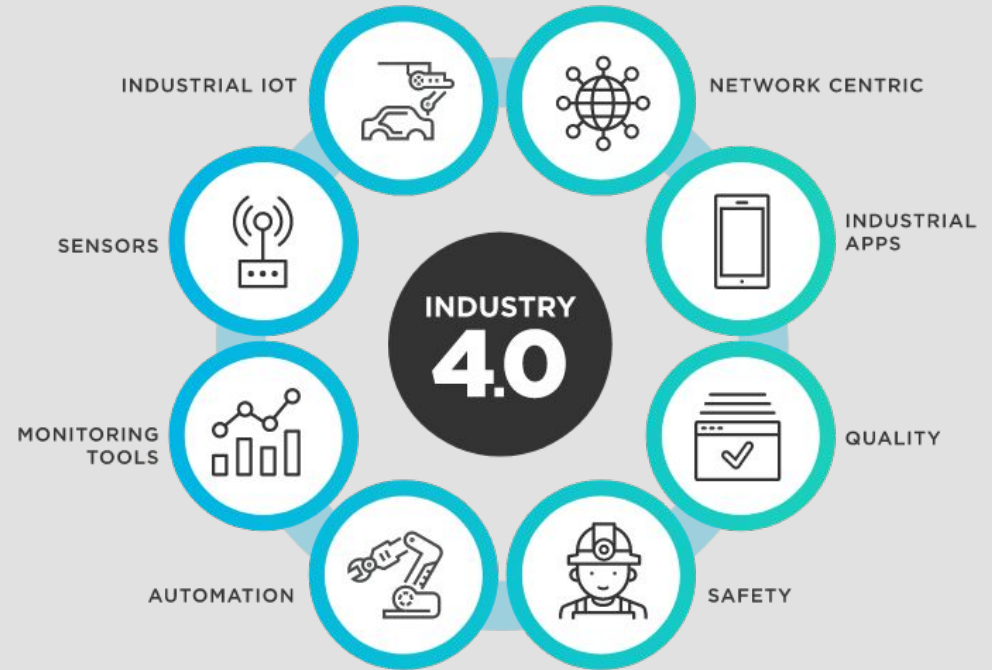
```
mysql> select * from todo_items;
```

id	name	completed
30691844-284c-4a16-980f-64f73fd5862d	item 1	0
cdda798a-8c56-4bdd-b351-75c7cde62dc8	prueba	0

```
2 rows in set (0.00 sec)
```

```
mysql>
```


Siguientes pasos



Siguientes pasos

- Prueba de todas las APPS relacionadas al SDVUN
- Creación de aplicaciones basadas en Contenedores docker
- Primer acercamiento a containerizar Sdv Map Viewer

**Muchas
gracias**