A close-up, high-angle shot of a Universal Robots robotic arm. The arm is primarily light blue and silver, with a dark grey gripper at the end. It is positioned diagonally across the frame, with its joints visible against a solid black background.

Universal Robots

Hackathon 2019 BCN

UR Resources for software development

- 1) Academy**
- 2) Soport de producto online**
- 3) Registro a la web de Developers**
- 4) Acceso al Forum**
- 5) Descarga de las herramientas SDK**
- 6) Formación desarrollo URCaps**
- 7) Entrega de material**
- 8) Comunicación**
- 9) Hackathon Milestones**

Academy

www.universal-robots.com/academy

UNIVERSAL ROBOTS

Para obtener la mejor experiencia de aprendizaje, le recomendamos que complete los seis módulos en orden secuencial.

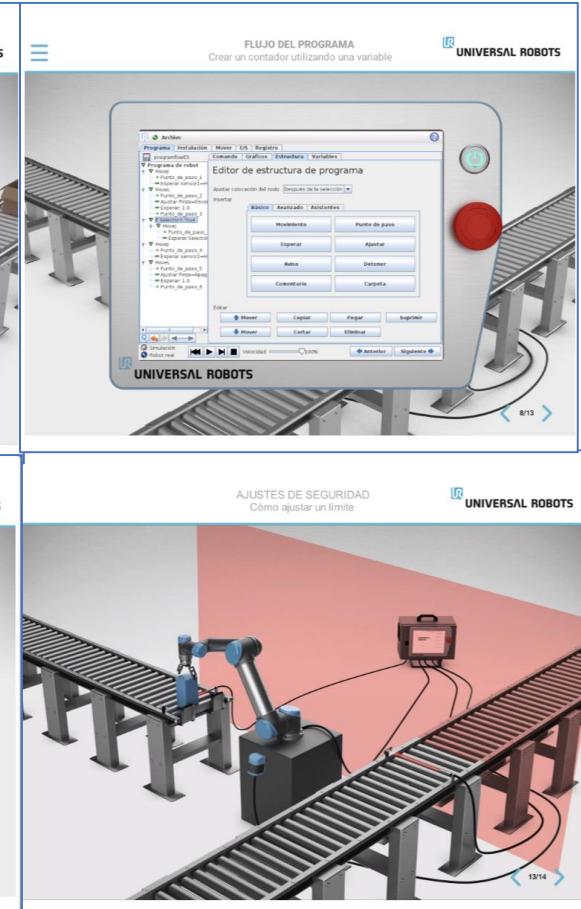
Contacto:
academy@universal-robots.com

USUARIO ADMINISTRADOR CERRAR SESIÓN

TABLERO MI PERFIL ENTRENAMIENTOS DOWNLOADS CERTIFICADO

DETALLES, CARACTERÍSTICAS Y TERMINOLOGÍA	CÓMO FUNCIONA EL ROBOT	CÓMO AJUSTAR UNA HERRAMIENTA
CREAR UN PROGRAMA	INTERACCIÓN CON DISPOSITIVOS EXTERNOS	AJUSTES DE SEGURIDAD
COORDENADAS DE LA FUNCIÓN	EMPAQUETADO	FLUJO DEL PROGRAMA

* Para obtener un mayor rendimiento, por favor utilice Internet Explorer y habilite Flash Player



UNIVERSAL ROBOTS ACADEMY

9 free online training modules

Anybody can become a robot programmer in 87 minutes.

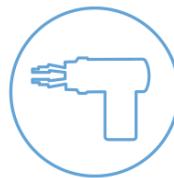
universal-robots.com/academy



Module 1
Features & Terminology



Module 2
How the robot works



Module 3
Setting up a tool



Module 4
Creating a program



Module 5
Interaction with
external devices



Module 6
Safety Settings



Module 7
Feature Coordinates



Module 8
Packaging

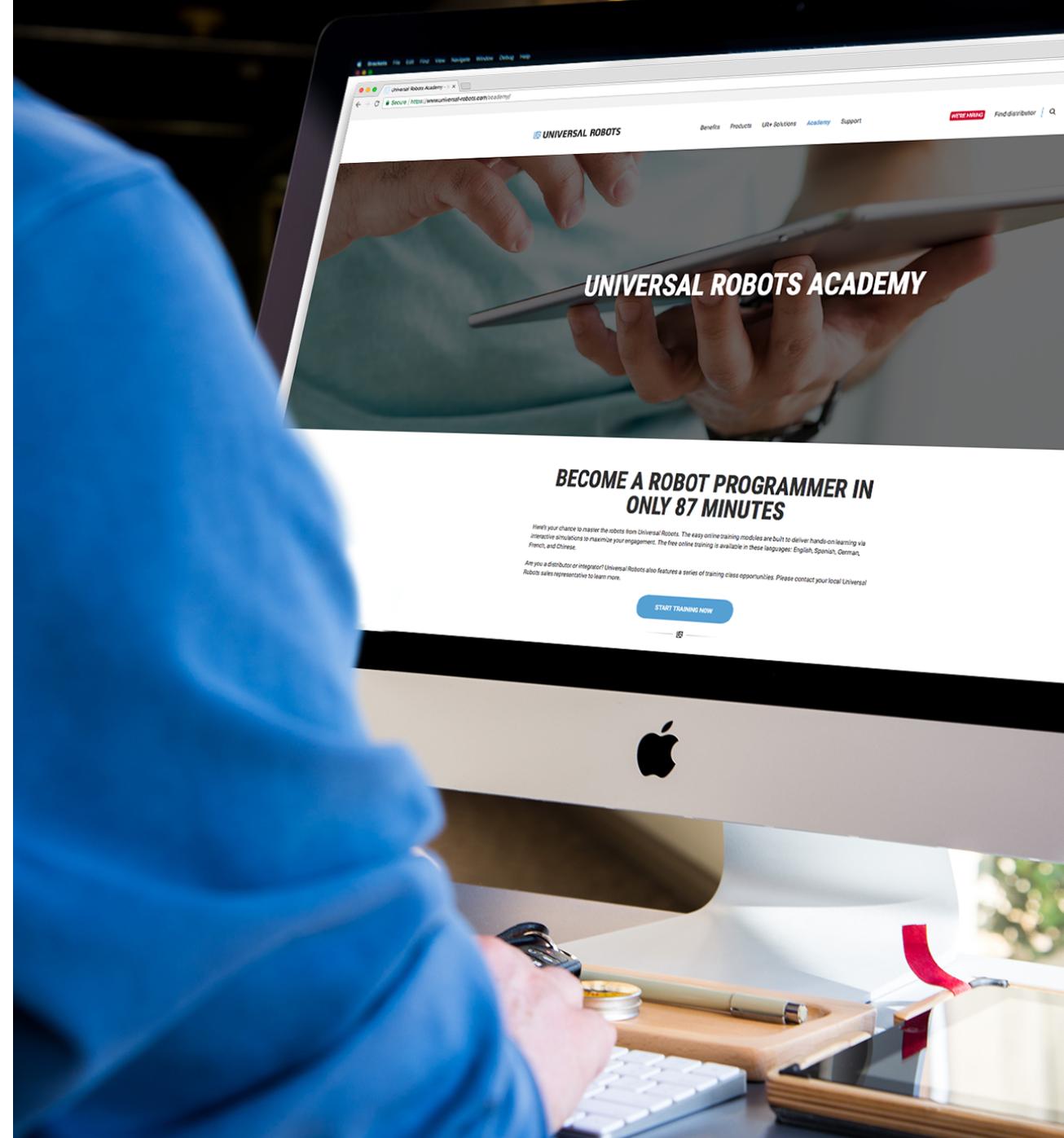


Module 9
Program flow

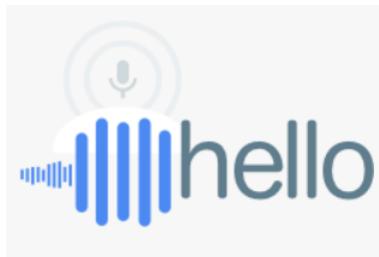
E-LEARNING

El E-learning contiene módulos que brindan los elementos básicos y "imprescindibles" para el funcionamiento de nuestros robots de colaborativos

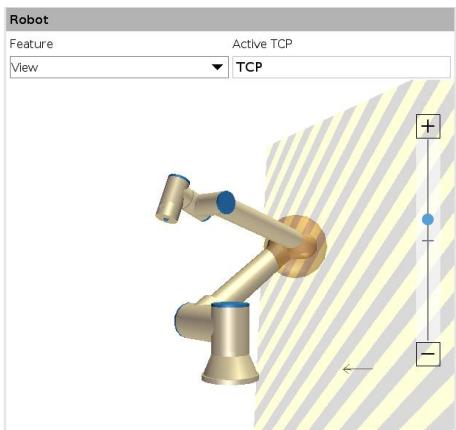
- Compone los principios básicos de la programación de robots
- Diseñado como simulaciones interactivas, no solo transferencia pasiva de información
- Disponible en línea en computadora y tableta
- Certificado al completar todos los módulos
- Actualmente disponible en inglés, alemán, español, francés, chino, japonés y coreano



Demostración de montaje de dispositivos móviles



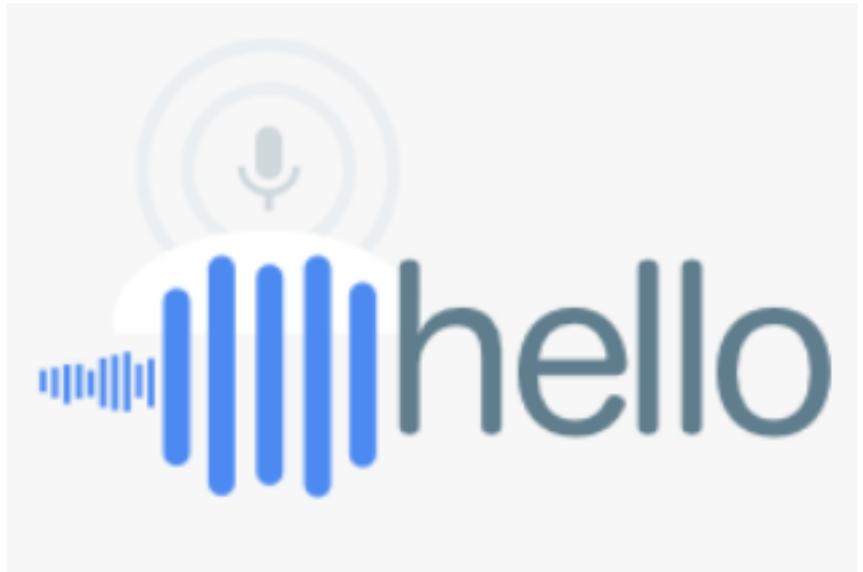
Challenge 1



Challenge 2



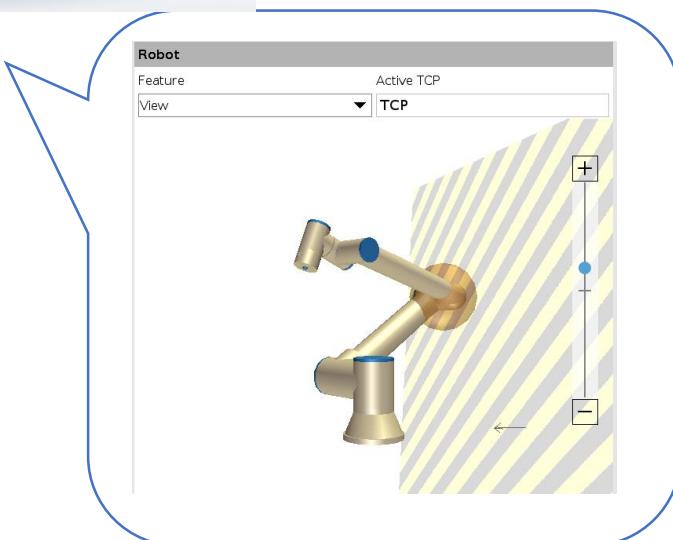
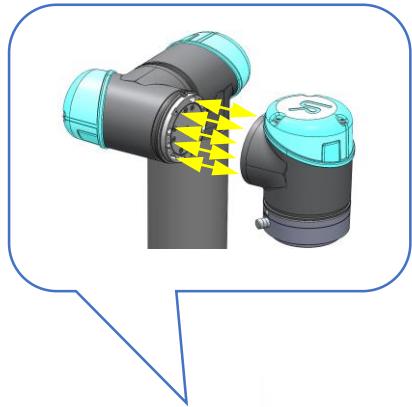
Challenge 3



RETO 1 – Reconocimiento de voz

Reconocimiento de voz y diálogo
para comandar el cobot

*Configuración de la aplicación
desde URCap.*



RETO 2 – Realidad aumentada

Proporcionar información superpuesta en tiempo real para informar de:

- Estado de los componentes
- Configuración de seguridad
- Datos de producción
- Próximos movimientos, etc.

Configuración de la aplicación desde URCap.



RETO 3 – Data mining

Aplicación en la nube para visualizar y monitorizar datos en tiempo real y a distancia.

- Estado de funcionamiento del robot, paradas de emergencias, etc.
- Datos de producción, ciclos, rendimiento, etc.

Configuración de la aplicación desde URCap.



Qué es UR caps

Interfaz visual de configuración de herramientas, softwares y periféricos



Soporte de producto online

The screenshot shows the homepage of the Universal Robots Support website. At the top, there's a blue header bar with the "UR UNIVERSAL ROBOTS SUPPORT" logo, a search icon, and navigation links for "HOW-TO", "FAQ", "DOWNLOAD", and "Q". Below the header is a large banner with a technical drawing of a robot arm component and the text "Welcome" and "Universal Robots proactively shares information with customers". On the left side, there's a section titled "How-to articles" with a description and a "Go to How-to" button featuring a hand icon. On the right side, there's a section titled "Frequently Asked Questions (FAQ)" with a description and a speech bubble icon.

UNIVERSAL ROBOTS SUPPORT

HOW-TO FAQ DOWNLOAD Q

Welcome

Universal Robots proactively shares information with customers

How-to articles

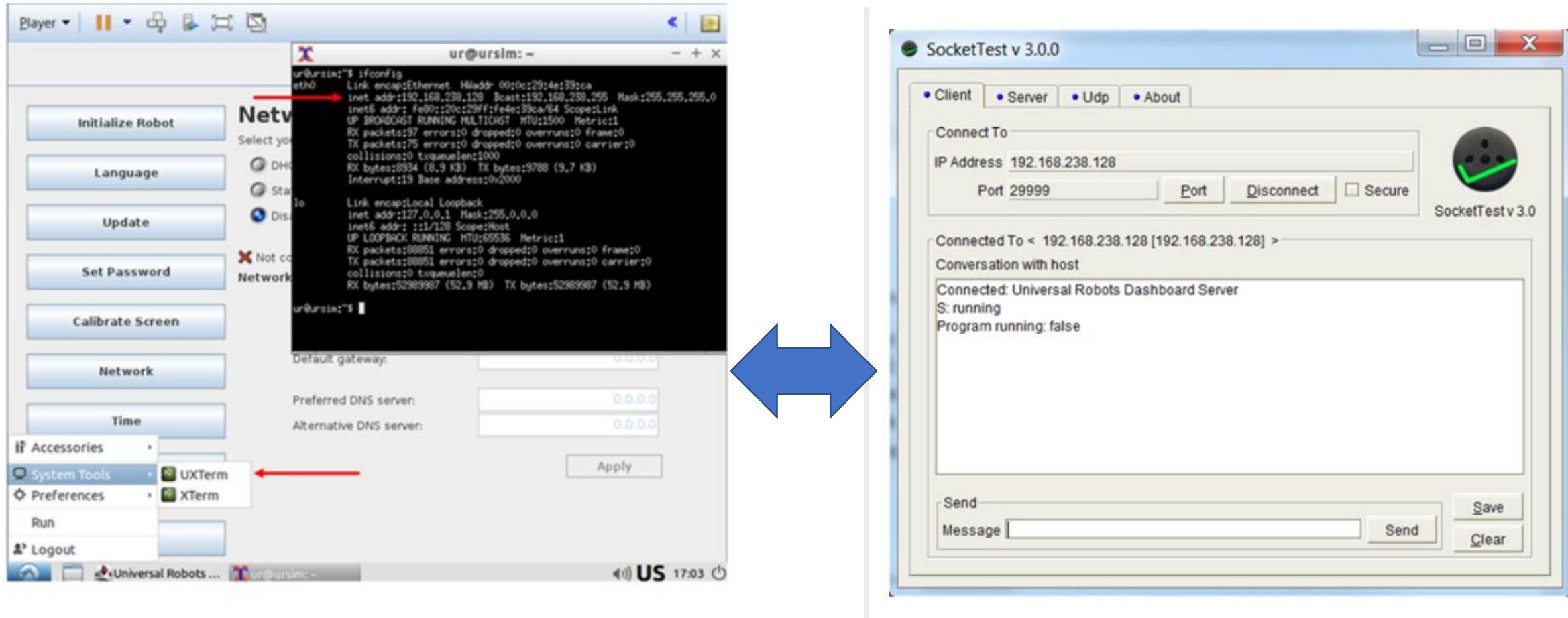
In the How-to articles you will find useful examples. The filter and search field helps you to find the topic you are interested in. You can see and choose difficulty level.

Frequently Asked Questions (FAQ)

Here you can find answers to most of your questions.

<https://www.universal-robots.com/support/>

Connecting to Client Interfaces within URSim



<https://www.universal-robots.com/how-tos-and-faqs/faq/ur-faq/connecting-to-client-interfaces-within-ursim-28850/>

Registro al Developer Forum

The screenshot shows the Universal Robots+ Developer Forum login interface. At the top, there's a navigation bar with links for Benefits, Products, UR+ Solutions, Education, Resources, and a 'WE'RE HIRING' button. Below the navigation is a large image of a smiling man with glasses and a beard, wearing a plaid shirt. Overlaid on the image is a dark rectangular box containing the forum's title 'UNIVERSAL ROBOTS+ DEVELOPER FORUM' in white capital letters. Below the title is a descriptive text about the forum's purpose: 'Sign in to the UR+ Developer Forum and start innovate/collaborate and Commercialize with Universal Robots. Get direct access the API/SDK software and join the conversation with fellow developers, get sparring online – or simply get in touch with Universal Robots experts for technical support.' There are two input fields: one for 'E-mail' and one for 'Password', both with placeholder text. A red error message 'Password is required' is displayed above the password field. A blue 'LOGIN' button is centered below the fields. At the bottom of the dark box are links for 'Create an account' and 'Forgot password?'. At the very bottom of the page, there's a footer with the Universal Robots logo and navigation links for PRODUCT, COMPANY, SUPPORT, EDUCATION, CONNECT, and GET STARTED.

<https://www.universal-robots.com/plus/developer/>

Developers Forum



Forum API Reference Download Center Getting Started

Do you want live notifications when people reply to your posts? [Enable Notifications.](#)

[all categories ▶](#)

Latest

New (2)

Unread (2)

Top

Categories

Topic

Category

Users

💡 New way of sharing URCap Samples

Hi Developers, To increase our collaboration, and working together on developing some awesome URCaps, samples are now moving to Github! If you check out Universal Robots Github you can find all the SDK examples, such a... [read more](#)

URCaps Samples



🔒 🎉 Release of URCapS SDK 1.4 and PolyScope 3.7 and 5.1

Dear Developers, Universal Robots has just released PolyScope 3.7.0 for CB3, and PolyScope 5.1.0 for e-Series. This is followed by a new URCapS SDK - 1.4.4, which contains API 1.4.0. New features This is a minor release... [read more](#)

Releases and News



Sending List of Bytes •

URScript



Use a ProgramNode type for calling a script file •



Run a program/thread continuously

URScript



<https://forum.universal-robots.com/latest>

Centro de descargas



Forum API Reference [Download Center](#) Getting Started

▼

/Featured downloads



URCAPS STARTER PACKAGE

URCAPS PLUGIN
URCaps Starter Package

[DOWNLOAD](#)



URCAPS SDK

URCAPS PLUGIN
URCaps SDK

[DOWNLOAD](#)

<https://plus.universal-robots.com/download-center/>

<https://plus.universal-robots.com/download-center/urcaps-starter-package/>

Simulador y Development Kit (UR SDK)



The screenshot displays two main windows. On the left is the Eclipse IDE's Package Explorer and LightUpProgramNodeService.java editor. The code implements a ProgramNodeService interface. On the right is the PolyScope graphical programming environment for Universal Robots, showing a simulation of a robotic arm and a script editor with URScript code.

Eclipse IDE Screenshot:

```
1 package com.ur.urcap.sample.lightup.impl;
2
3 import com.ur.urcap.api.contribution.ProgramNodeContribution;
4
5 public class LightUpProgramNodeService implements ProgramNodeContribution {
6     @Override
7     public String getId() {
8         System.out.println("running program");
9         return "LightUpNode";
10    }
11
12    @Override
13    public String getTitle() {
14        //This is the first time Localizat
15        System.out.println("running program");
16        return "Light Up";
17    }
18
19    @Override
20    public InputStream getHTML() {
21        System.out.println("running program");
22        InputStream is = this.getClass().get
23        return is;
24    }
25
26    @Override
27    public void start() {
28        System.out.println("running program");
29    }
30
31    @Override
32    public void stop() {
33    }
}
```

PolyScope Screenshot:

Welcome to PolyScope

The icons for starting the simulator for different robots are available in the toolbar.

Links to the program folders are also available and can be copied to Windows desktop.

Tips for getting started:

- Keyboard Setup
 - Default keyboard
 - Right click on "URCap" icon
 - Select "Keyboard" in the context menu
 - Select add to context menu
- Admin. Password
 - To modify settings

URSim UR3 Programs UR3 URSim UR5 Programs UR5 URSim UR10 Programs UR10

Entorno de programación gráfica de Universal Robots

PROGRAMA shunk3* INSTALACIÓN default Nuevo... Abrir... Guardar...

Básico Avanzado Plantillas

Palé Búsqueda Fuerza Seguimiento de la cinta t...

URCaps

Light band Disable

+ Move] home tube=tube+1 'Initial setup'

if(tube>0)

RandomPosition

If pos_occupied=True,True,True,True,

= pos_occupied=False, False, False, F

= random_pos=floor(random()) + 6

Bucle pos_occupied=random_pos=True

Espera 0.5

random_pos=floor(random()) + 6

pos_occupied=random_pos = True

Subproceso_1

force_tcp==get_tcp_force()

force_z==force_tcp[2]

sync()

Velocidad 100%

13:08:57 5 de octubre de 2018

Entrega de material

- UR3e
- Mesa
- Herramientas: pinzas mecánicas, etc...

Comunicación

- Soporte directo vía Whatsapp
- Revisiones mensuales presenciales con los equipos y coordinadores
- Entrega de material según necesidades de los equipos

Hackathon Milestones

- ✓ Definición de los grupos – final Octubre
- ✓ Diseño – final Noviembre
- ✓ Implementación y test – final Diciembre
- ✓ Demo interna – final Enero
- ✓ Presentación final (semi final) – principio Febrero
- ✓ Competición – 28 de Febrero

La Universidad coordinará el hack junto con Universal Robots

2019 HACKATHON – MOBILE ASSEMBLY

CHALLENGE

- RETO 1 – Reconocimiento de voz
- RETO 2 – Realidad aumentada
- RETO 3 – Data mining

PARTICIPANTES

Estudiantes de las mejores universidades españolas.

Grupos de 2 personas por reto, equipo 6 personas por universidad.

AGENDA

- Octubre 2018 – Kick-off en cada Universidad con un UR3e
- Octubre 2018 a Enero 2019 – Desarrollo de los tres retos con la demo
- Enero / Febrero 2019 – Semifinal
- Febrero 2019 – Final en Mobile World Congress (no confirmado)

2019 HACKATHON – Beneficios

- Cesión de un e-Series modelo UR3e
- Cobertura mediática
- Entrar en la comunidad Universal Robots+ Developer
- Convalidación de créditos
- Proyecto final master / grado