# Smooth Robotics

# and the SmoothTool solution

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### Smooth Robotics



#### **Our Focus**

To automate the welding process and to perfect the way robots work on the principle of human expertise in both quality and efficiency.

#### Our Goal

To automate the welding process worldwide and make big productions accelerate and become more productive.

#### **Our Story**

Smooth Robotics is a spin out from the University of Southern Denmark and Danish Robotic Cluster based on the idea that complex robot programming can be eliminated. We make robots easy to use - and give full control back to the end-user with the product SmoothTool



### What we do

We enable your experiences in the way your robot works with you. Detail and focus should never be lost in translation between human and machine. It should flow naturally.



Hardware for handguiding and setting points on the Universal Robot



With SmoothTool it's possible to transfer your professional welding skills to collaborative robots. In a smooth, easy and fast way you can "show and tell" a welding robot how you want the perfect result without doing any programming.

### SmoothTool software





#### SmoothTool



Simple and intuitive No-code-programming 80% faster changeovertime

### Weaving

### Offset

### Stitch

### **3D** visualization

### Features | Overview

#### Weaving (Linear and circular)

- Works on both CB and e-series
- Set and adjust the amplitude, frequency and dwell time for the optimal welding result.

#### Offset

- Copy and offset items in X, Y, Z direction or manually move the robot to a desired offset position
- Ensures the best weld each time

#### **3D** visualization

- Visualize your welding path before pressing start
- Toggle between relevant path information in the 3D viewer

#### Stitch welding

 Control your stitch weld with parameters e.g., retraction, weld length, airspeed, number of welds

#### **UR+ certified**

• The product is certified for Universal Robots

#### **Powersource integration**

 Integration and parameter management directly on the teach pendant

#### Additional features of the SmoothTool Software

- Quick and easy installation
- User friendly software
- Short training period
- High flexibility
- Quality improvement
- Increased efficiency



## "Nobody needs a robot, everyone needs a solution."

# SmoothTool welding software features

### Complex welding made easy!



SmoothTool



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# Start screen

#### New item

This will add extra items to the program tree.

#### Select item to start from

When you want to start the program, you can choose which item you want to begin your program from. This gives you the possibility to start from any given item in the program.

#### Offset

This feature becomes active when you have set everything in the first item. Then you will have the possibility to offset the existing item(s).

#### 3D

This feature enables you to see the path in 3D



# Weaving

Each linear and circular line segment can be given a weave pattern.

By changing the different parameters, you can get either zig-zag or trapeze shapes.

You can see the pattern changes in the 3D visualization of the path.



# Stitch

Each linear and circular line segment can be stitch welded.

You can define the length of the weld, how many mm the TCP must retract and the number of welds between the line segment.

The program will let you know if you try to enter parameters that cannot be completed.

Again, you can see the actual path in the 3D visualization for a quick approval.



# 3D visualization

We give the operator the possibility to enable or disable points, lines, weaving, stitch and start/end points.

The operator can choose only to have the things visible that make sense to him/her.

You can choose between two preset camera angles or just use your fingers to move around the scene.

You can also zoom in/out and change between orientation or translation.



# Offset

With offset you have the possibility to copy and offset all previous items.

You can offset in X, Y, Z direction or by setting an offset point.

Offset point is used when you just want to move the robot arm manually to the start point of the new item instead of defining it in coordinates.

On the following slide you can see the result of using offset on a previous item.



# Offset – 3D visualization



# Integration

With the callback function you can define different functions with UR Script commands to start and stop welding.



# Integration

The I/O setup dictates which input and output the program will be listening to and setting.

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We are actively looking for distributors and integrators of the SmoothTool product.

If you are interested, please contact us for further information, or if you would like a demonstration of the product, we will gladly perform an online demonstration of the software.



### Contact

Interested in hearing more about SmoothTool and how we can help you?

Then contact

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