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IntegrationHelper version 1.1

1 Introduction

This short installation guide shall help to integrate the radarTOUCH system in your set up. It is not a replacement for the radarTOUCH manual. So please read the manual and the quick start manual first to understand how the radarTOUCH works and what is possible. You can download all documents here:
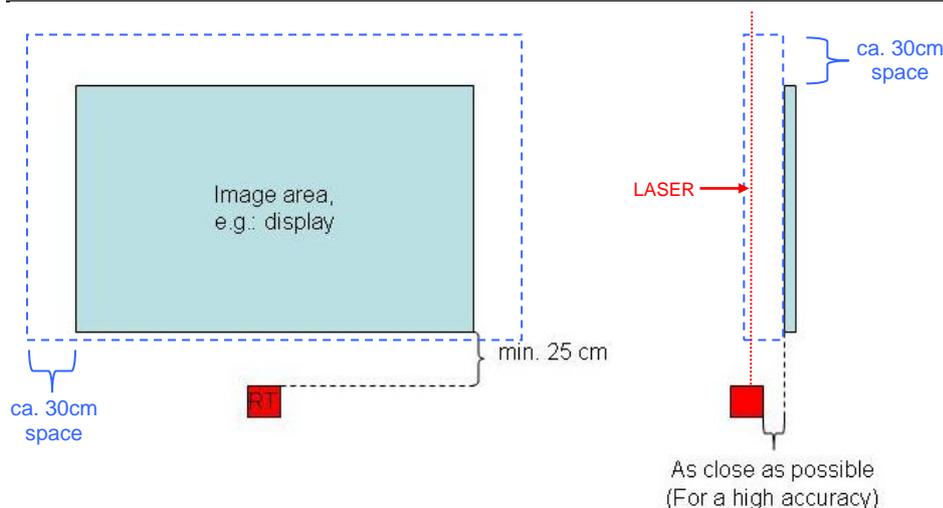www.radar-touch.com
Always be aware of the fact that mechanical installation as well as software integration is influencing the performance of radarTOUCH a lot!

2 Mechanical installation and PC connection

2.1 The best way of mounting
Generally the measurement device should be mounted with a distance of min. 25 cm below or above the image area. If a high accuracy is needed the laser should scan as close as possible over the image area. If you just want to use gestures you can place the measurement device also far away from the image area.
Make sure that nothing is to close around the image area that could disturb the measurement device by reflecting light. Ca. 30 cm space should work.

One radarTOUCH can cover an area with a size of ca. 20 m theoretically. But note that the resolution and the object recognition decrease with increasing distance. Within this area you can create 10 active areas that send the TUIO data to different IPs. So it is possible to feed multiple PCs or software applications with one radarTOUCH. If needed, more than 10 active areas can be realised. The more exact the active areas are configured, the higher is the accuracy of the touch coordinates. Please have a look at the radarTOUCH quick start manual regarding to that.

Example: In an area of round about 7 meters the resolution is high enough for buttons that are ca. 3 cm in diameter, as long as the laser scans very close (ca. 2 cm) over the image area. For difficult set ups with high accuracy it is recommended to use the deluxe mounting system (manual chapter 3.1.1). Please note that these are

just approximate values, it is necessary to test the system with the software application to figure out what is the best way of mounting and configuring.

2.2 Multiple radarTOUCH systems in one application

It is possible to use more than one radarTOUCH system for one application to cover very large areas or to get a higher resolution. The application software has to be able to receive and handle the TUIO output from the several devices. To combine the active areas from the different devices, there is a solution called radarSTITCHER, please contact us for more information. But so far you will have to implement that in the application software. In the manual at chapter 4.2.2 you will find all information regarding the TUIO output and in chapter 4.3.2 you will learn what you have to change in the settings.xml file to let more than one radarTOUCH run with one PC.

2.3 Concealing the measurement device

If necessary the radarTOUCH measurement device can be covered. But the laser has to be able to scan unopposed through this cover. The following drawing shows a way to figure out the length of the cut-out. The width should be ca. 6 cm.

$$\tan(alpha) = b / a$$
$$\tan(alpha2) = b2 / a2$$

if alpha = alpha2 then $\tan(alpha) = b / a = b2 / a2$
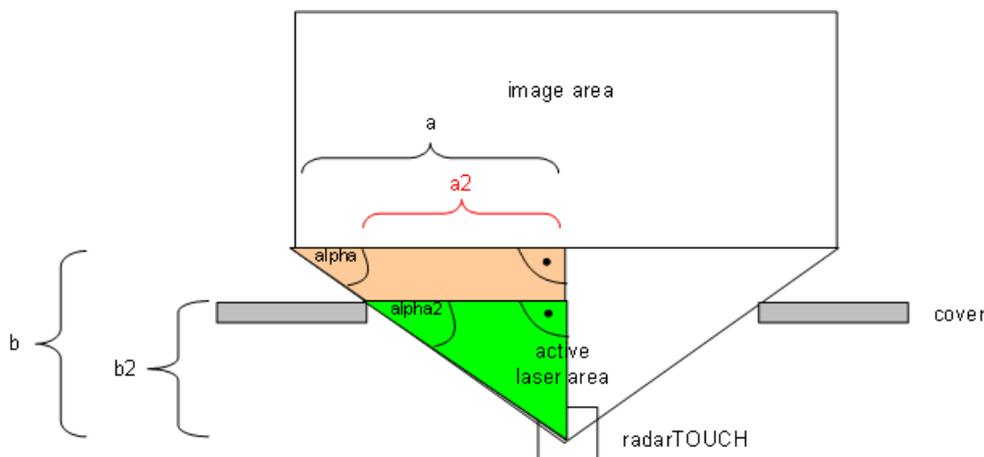
$$a2 = b2/\tan(alpha) = b2/(b/a)$$

2.4 radarTOUCH and projection

If you want to let a projection be interactive you should use a rear projection to avoid shadows on the image area. The screen should be very plain and should not have a frame that could interrupt the laser if it scans very close to the screen. Please note that if the screen isn't well mounted and you touch it, it could contact the laser and activate an event.

2.5 radarTOUCH and display wall

Regarding to a set up with a display wall you have to note that each display has a frame that overhang a few millimetres. To avoid that these frames disturb the laser you could use a glass plate in front of the display wall. That also protects the displays. But the con is that the distance between image and laser will increase.

If the distance is too large that might cause operating errors:
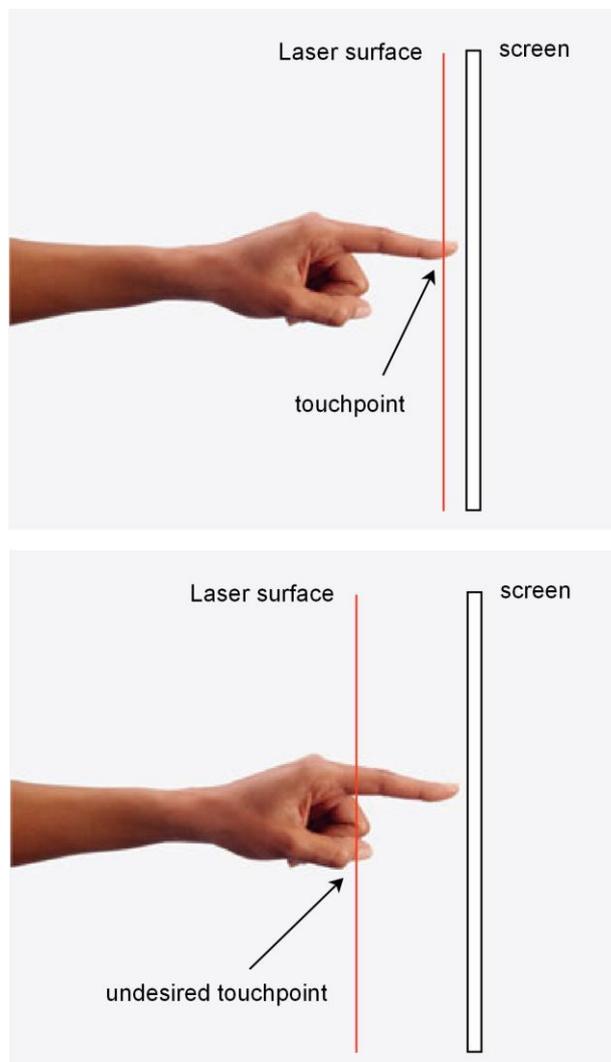
3 Software interfaces

3.1 radarTOUCH and Windows 7

To make the system run with Win 7 native touch commands you have to install "Multitouch Vista". This is a software bridge that translates TUIO data in touch commands that Win 7 can understand. An installation guide regarding Multitouch Vista you will find on the radarTOUCH homepage under downloads.

3.2 radarTOUCH and Flash

If you want to use Flash to create your software application you either have to use the mouse emulation (manual chapter 4.2.1) or you can use the Flash AS3 TUIO Client. This library supports both TUIO/FLC and TUIO/TCP transport methods and implements the basic TUIO callback API. The library also provides a legacy API in order to support existing Flash examples, that have been based on the original touchlib API. Here are more information and a download link:
http://www.tuio.org/?flash

3.3 radarTOUCH and ORAD

ORAD offers high end soft- and hardware to create broadcast content like On Air Graphics, Virtual Studio or Sports Enhancement. With ORAD's "3Designer" you can create 3D graphics, give them characteristics like "can be moved" or "can be klicked" and link these characteristics directly to logics. This program offers a TUIO interface, so it can be easily connected with the radarTOUCH system.

With ORAD's "3DPlay" you are able to control the scenes, that you have created in 3Designer before.

More information you will find here:
http://www.orad.tv/products/3designer
http://www.orad.tv/products/3dplay

3.4 radarTOUCH and Ventuz

Ventuz is a realtime 2D/3D developer tool for presentations or virtual studios for example. Since version 3 it is possible to use the TUIO protocol directly with some Ventuz nodes. But this just works on low level, so if you want to use the TUIO raw data you have to create a bridge between TUIO and Ventuz.
Of course you can simply use the mouse emulation.

More information is available on:
www.ventuz.com

3.5 radarTOUCH and vvvv

www.vvvv.org:
"vvvv is a graphical programming environment for easy prototyping and development. It is designed to facilitate the handling of large media environments with physical interfaces, real-time motion graphics, audio and video that can interact with many users simultaneously. Responsible for its development is the vvvv group."

vvvv can receive and handle TUIO without any bridge. On the vvvv homepage you will find more information.

3.6 radarTOUCH and Watchout

Watchout let you produce and playback content (animations, graphics, video, sound,…) especially made for multi-display areas. To use it with TUIO it is necessary to create a bridge between TUIO and Watchout.

Information is provided here:
http://www.dataton.com/watchout#