

## Gungnir Elite Dartstracker



### Quick Start Guide V1.0

An online version of this guide can be found here :



[https://gungnirdarts.com/downloads/GungnirEliteDartstracker\\_QuickStartGuide\\_V1.pdf](https://gungnirdarts.com/downloads/GungnirEliteDartstracker_QuickStartGuide_V1.pdf)

## Quick Start Guide

First mount the complete surround level on the wall or a dart standard with the bull at 2,37 m. Make sure the waterlevel on the surround is level.



*Figure 1: The surround must be mounted level*

Attach the mount to the board. Attaching this level might be a bit difficult, but usually the board has some features to get this right. This dartmount fixes the rotation of the board on every sector and is very handy for this type of automatic scoring system.



*Figure 2: Attach the board mount*

Make sure the board itself is level when placed on the surround.



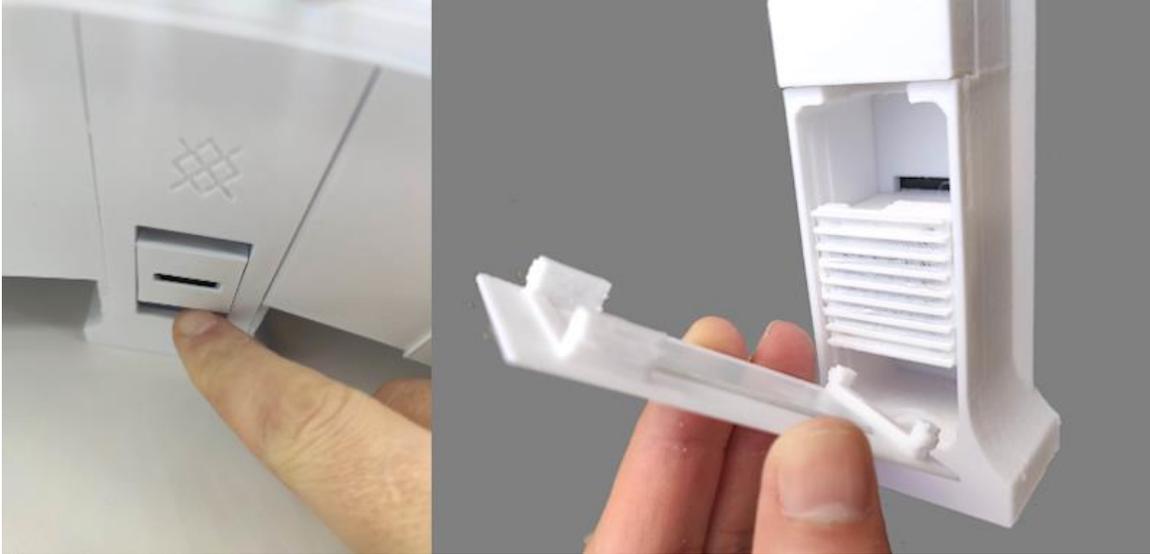
*Figure 3: The board must be level after the board mount is attached*

Now with the board in place first adjust the camera heights with the camera height tool. If you hold the thick end on the board, the tip should be at the same height as the black aperture of the camera holder. If this is not the case, move the camera up or down so it is at the same height as the tip. Mind that height in this context does not mean distance to the bull, it means distance from the back of the surround.



*Figure 4: The tip of the camera height tool should be at the same height as the black aperture of the camera holder*

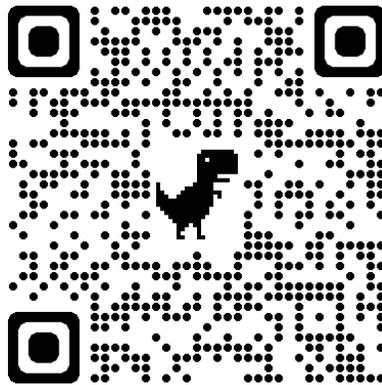
Do this for all 4 cameras. You can try to move a camera from the front first and try it out, but to fix a camera in position open the camera foot from the back and remove the strip from the double sided tape on the backplate.



*Figure 5: Move the camera from the front or the back of the camera foot*

Now plug in the power of the ledstrip and the Raspberry Pi.

Start the Dartstrainer app on your android device. If you haven't installed it already you can get it from the playstore here :



[https://play.google.com/store/apps/details?id=com.ebouma.gungnir.dartstrainer&pcampaignid=web\\_share](https://play.google.com/store/apps/details?id=com.ebouma.gungnir.dartstrainer&pcampaignid=web_share)

Press Search to find the board.



Figure 6: Start screen of the Gungnir Dartstrainer

Go to Settings...Gungnir Dartstracker..Complete Calibration. Follow the instructions that appear on the screen. When the calibration asks for the black sphere place it in the center of the bull and push it into the board up to the thick part just below the sphere. **Important: Make sure there are no number ring holders blocking the direct line of a camera view to the bull.** If so rotate the board until every camera has a free view at the board, but if this is a problem you can try the solution at '**Calibration failing due to number ring holders blocking a camera view.**' offered in the 'Tips & Tricks' section at the end of this document.



Figure 7: Place the sphere in the center of the bull



Figure 8: Push the sphere all the way down to the thick part

After this step the calibration will ask to place darts at specific positions around the board to get a basic estimate of the sectors on your board.



Figure 9: Place a dart at the position indicated by the orange dot



*Figure 10: The place of the dart on the board*

When this last calibration step is done you can start a game. Go to Local Game...X01 and press Start. Choose a player if needed by clicking Players at the bottom.

Mind that when playing your first games, after the 'Complete calibration' the sectors in the board have been calibrated by a mean value for all the sectors. When a dart is wrongly detected, correct it by tapping on the throw until it has the right value. When no alternatives are left a special panel will open in which you can select your throw manually. After submitting the complete turn the dartstracker will adjust the values for the changed sectors automatically. This way your dartstracker will become more accurate with every correction made.

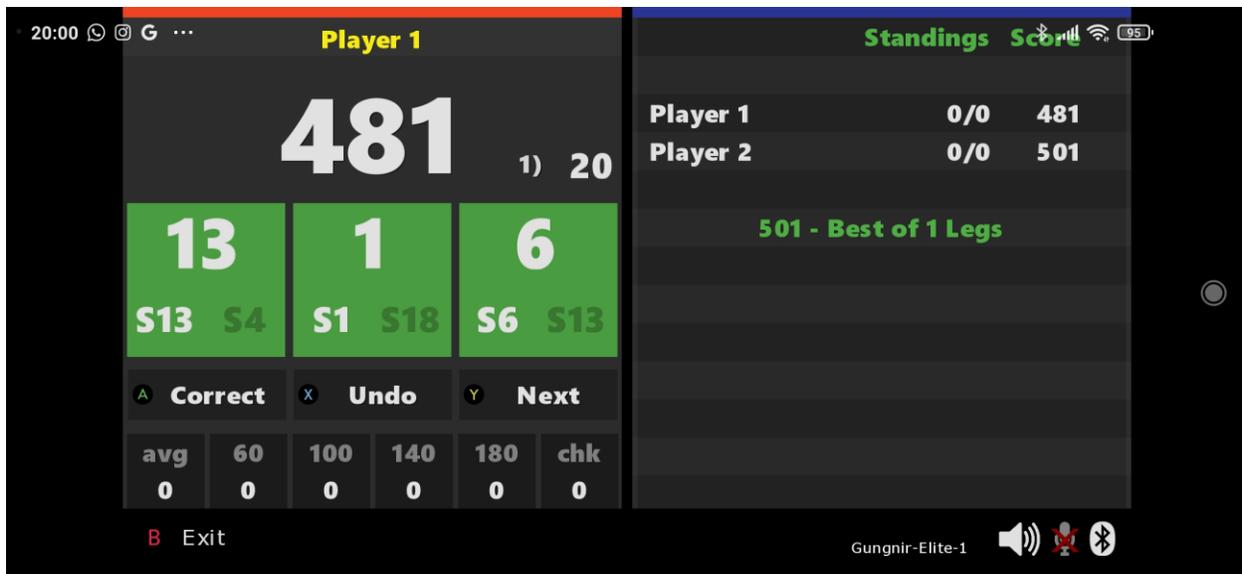


Figure 111: The alternative is shown at the right bottom of the throw

## Maintenance

When you have rotated the board or the accuracy is lower then it used to be. It's good practice to do the "Camera height calibration" and "Detection area calibration" in this order to check if the camera's haven't moved and correct for any rotations. You can find these in the Settings...Gungnir Dartstracker...Calibration menu.

## Have fun playing!

Oh, and where does the name Gungnir come from ? Gungnir is the Spear of Odin and is also referred to as the "Spear of Heaven". It is an ancient weapon and is known for always hitting the target of the attacker regardless of the attacker's skill.

## Updating

After you've done the initial setup it may be good to check for updates for the dartstracker & dartstrainer. How to do that you can read below in the Tips & Tricks.

## Tips & Tricks

Below important things to know about the dartstracker & dartstrainer.

- **Connecting to the web interface.**

To access the webinterface the dartstracker should be connected to the network. This can be done through a LAN cable or connecting it to the wifi. To connect to the Wifi open the dartstrainer app and go to Settings...Gungnir Dartstracker...Network. Then select the wifi network and enter the password. After this the dartstracker will

reboot, and you will have to connect to the board again. You can find the ip adress of the dartstracker again on the network page above. Open a browser on another device and go to <http://<ip-address>> and the web interface will open.

- **Updating the Dartstracker & Dartstrainer**

To update the dartstracker to the latest version connect to the webinterface and go to System...General. On this page press the Update button. The dartstracker will now be updated to the latest version. To check for new updates of the Dartstrainer app look it up in the Play store on your android device. If an update is available it will be shown there.

- **Download your configuration as backup**

Due to the nature of the raspberry pi's storage on a microsd card there is a chance that the configfile gets corrupted sometime in the future. To be able to recover from this, you can download (and upload) the configuration in the System..Backup menu. The best time to do this is after a complete calibration when the system is working accurate.

- **Setting the Bluetooth device name and QR-Code**

When using multiple boards side by side it's handy to create unique names and QR-Codes for the boards to connect to with the dartstrainer app. To do this connect your board to the wifi as explained above and go to the System...Bluetooth menu. You can enter a new devicename in this screen and press Save. After this you can download a pdf with the QR-codes to print and put on your board.

- **Calibration failing due to number ring holders blocking a camera view.**

The first thing you can try is to rotate the board to a position where no number ring holder is blocking the direct line of view of a camera to the bull. If this is not possible or you want to be able to rotate and use every sector on the board, you can remove the number ring holders and glue the supplied numbers to your surround. This way you can rotate the board for every sector and have removed a source of inaccuracy. Mind that it's also possible to use the webinterface and manually configure the values, but this is for advanced users.



Figure 122: Solution for camera views blocked by number ring holders.

- **Dartboard is found in the Dartstrainer app, but when playing a game no connection can be made or nothing happens when connected.**

This usually happens when the Dartstracker is rebooted or the Dartstrainer was in the background and reactivated. You can fix this by killing the app and then start it again. Also make sure bluetooth and location permission have been given to the app.

- **No caller sounds in the Dartstrainer app (or how to change voice)**

This happens when the preferred text to speech service in Android is not set to google speech services. Go on your Adnroid device to settings and search for the text to speech settings. Then choose as preferred engine the google Speechrecognition and synthesis. You can also change the voice that the app uses here.

- **The Dartstrainer app suddenly stops**

If you have enabled 'Voice Command' in the app by tapping the microphone at the right bottom, it sometimes happens that the underlying processing engine crashes. There is no workaround at the moment, if it happens too often disable voice command.

- **More information**

For a manual with a complete description of all the functions check the <https://gungnirdarts.com> website.