Where are the cars on the track?

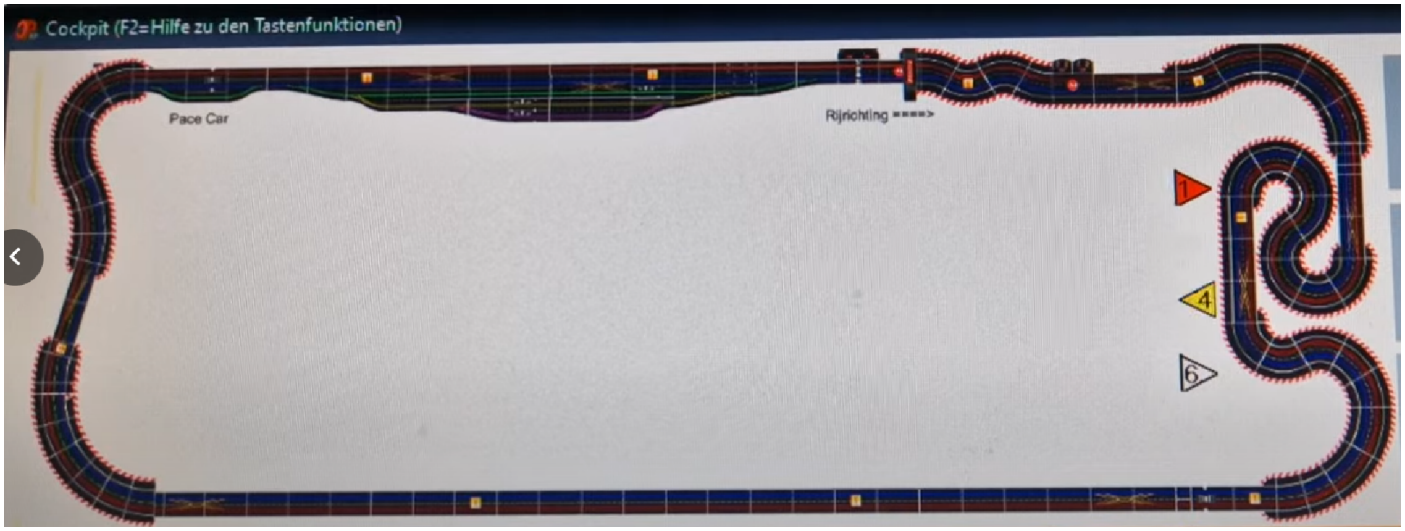
If you watch Formula 1 races, you will often see the layout of the track with moving circles somewhere at the top right, which should represent the current position of the driving car. The colour then indicates which team belongs to which car.

This view inspired me to create something similar for the race track at home.

I already use Cockpit-XP for measuring/counting laps and controlling many hardware components.
Because Cockpit-XP was never made specifically for Carrera Digital, but actually for analogue race tracks, the focus was to also measure and count laps with optical sensors. Later even IR sensors, however these can also be used for digital tracks, with the advantage that the ID number is also recognised.

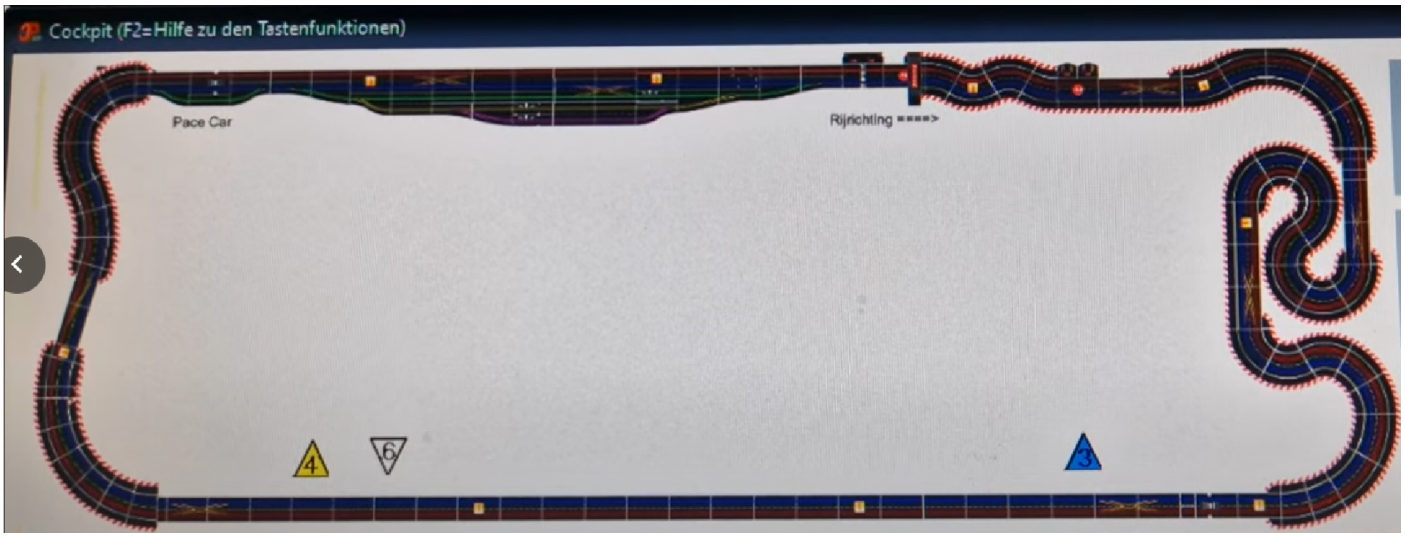
Using these IR sensors, you can make feedbacks on your entire track.

How many of these do you need?
Two per track section and a multiple of this. Depending on the length of your track, you can place 4 or more IR sensors. I myself have a track length of over 31 metres and have placed 12 IR sensors, which means 6 track sections, with an average distance of about 5 metres. A car travels at an average of 2...5 m/s.
So you get a feedback every 1...3 seconds.



Here you see ID-1 (red) and ID-6 (white) driving on the outside, ID-4 (yellow) driving on the inside.

Of course, you can also achieve this with the existing IR sensors in the Carrera bays, Start/ Finish, 2x Check lane. However, I myself have noticed that sometimes the Check lane does not send a signal to the CU, which means the signalling is omitted! Switching the CU off and on again temporarily solves this problem again.
That's why I opted for an independent system myself.



Here you see ID (yellow) and ID-3 (blue) riding on the inside, ID-6 (white) riding on the outside.

Besides this graphical representation, it has another important function!

1) Between ID-3 and ID-4 you can measure the top speed, for example.
2) Each sensor also acts as a 'Watchdog'. I.e. at each measurement point the passing car is recorded, if the next measurement point the same car does not report within a preset time then the 'Watchdog' is invoked and the race is stopped (Chaos), the car in question has most likely flown off the track?

This is certainly useful if you are only racing against 5 cars that are completely autonomous (Dual Speed Controller). You can't possibly keep an eye on all 6 cars by yourself during the race.

What do you need for this?

1) Cockpit-XP with licences for the necessary inputs and cable to CU
2) USB-Box with 12 inputs and 4 outputs **
3) Addon (additional program for display and monitoring)
4) Sensors for the track (track section complete with sensors and cable)

1 can be purchased from the software supplier
2, 3 and 4 can be supplied by us

** the USB-Box has removable connections for each 2 sensors and has 4 outputs that can be connected directly to a relay card.

https://www.youtube.com/watch?v=u9zKaOSBRPQ