

PPS LEGO MINDSTORMS PROUDLY PRESENTS:

**Zwei Teams,
Zwei Autos,
Ein Sieger!
Das Rennen der Saison!**



Dienstag 25. Mai 2010

12:15

EGF G1

ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich



TEAM 1



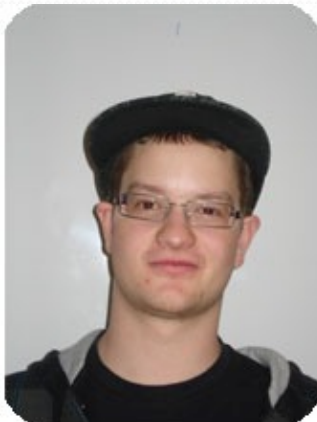
Andreas Egli



Dalibor Drzajic



Christoph Gebauer



Florian Elger



Yegor Gemba

TEAM 2



Matthias Britt



Fabio Banfi

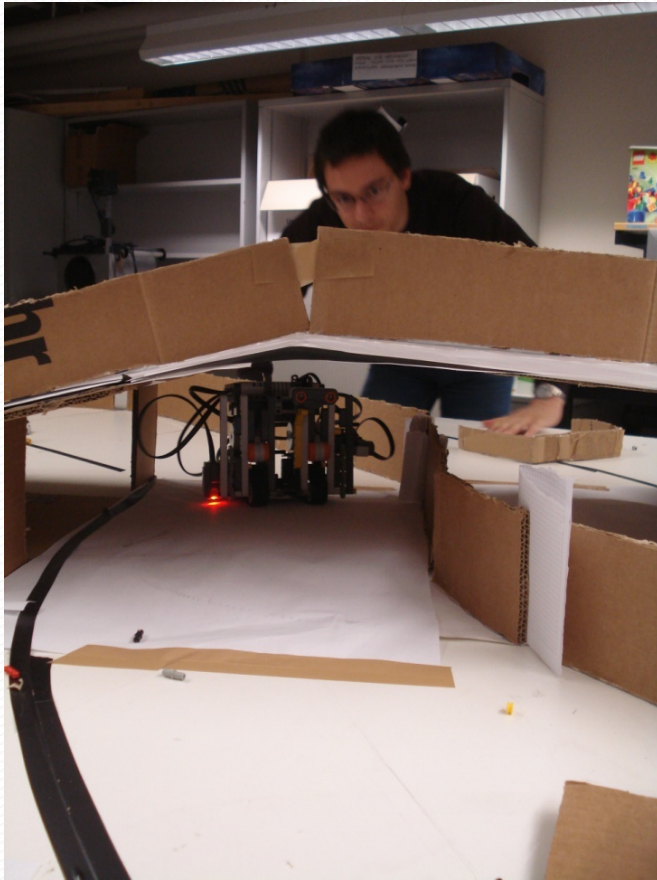


Adonis Engler

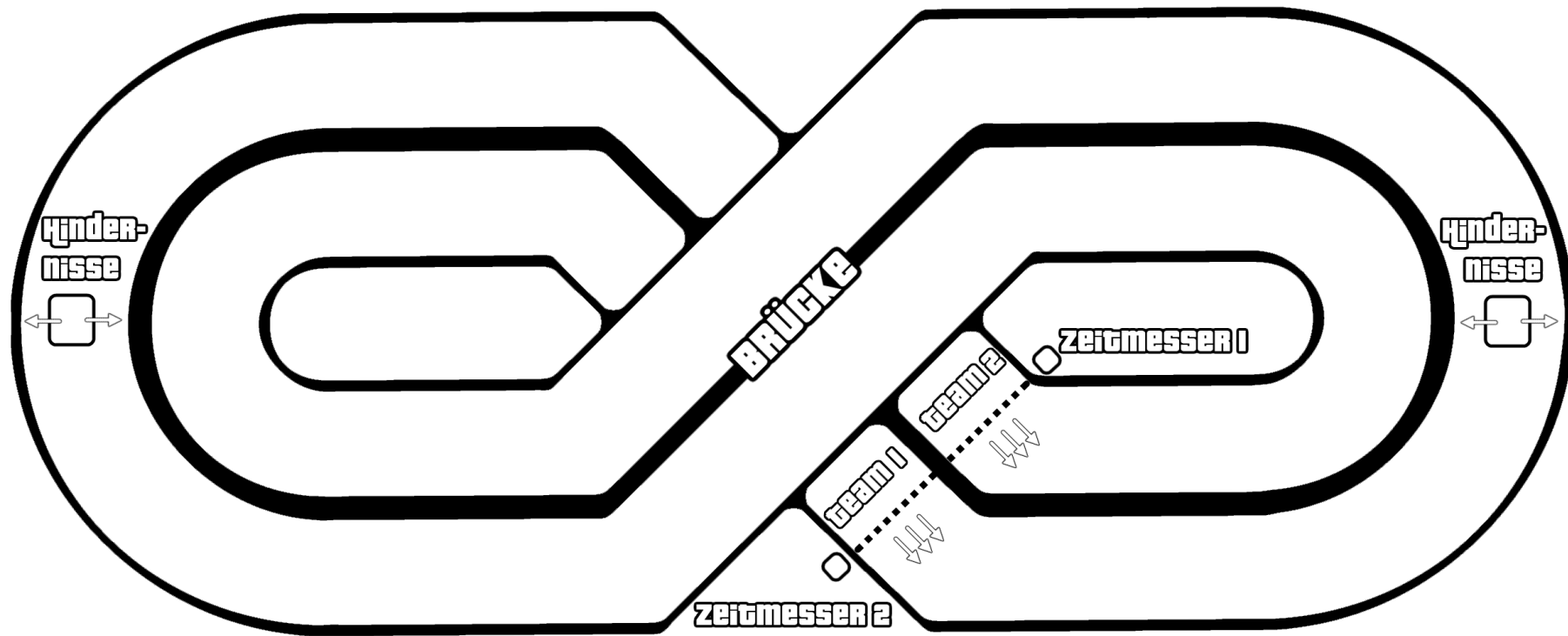


Andrea Capone

Die Regeln



Die Bahn



Zeitmessung

The screenshot shows a window titled "Race" with the following data:

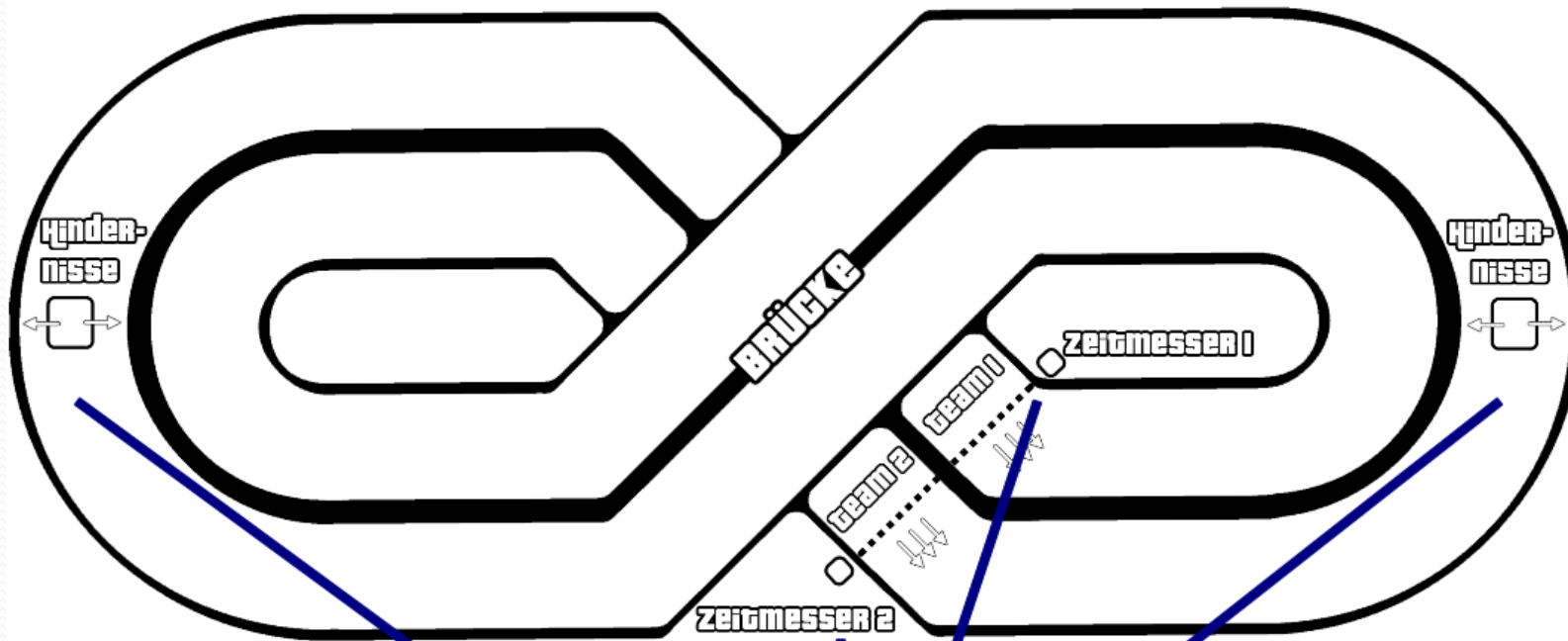
Team	Lap	Time
Team 1	Lap 1	00:33:876
Team 1	Lap 2	00:17:199
Team 1	Lap 3	00:54:420
Team 2	Lap 1	00:05:719
Team 2	Lap 2	00:05:898
Team 2	Lap 3	00:56:846

Penalties:

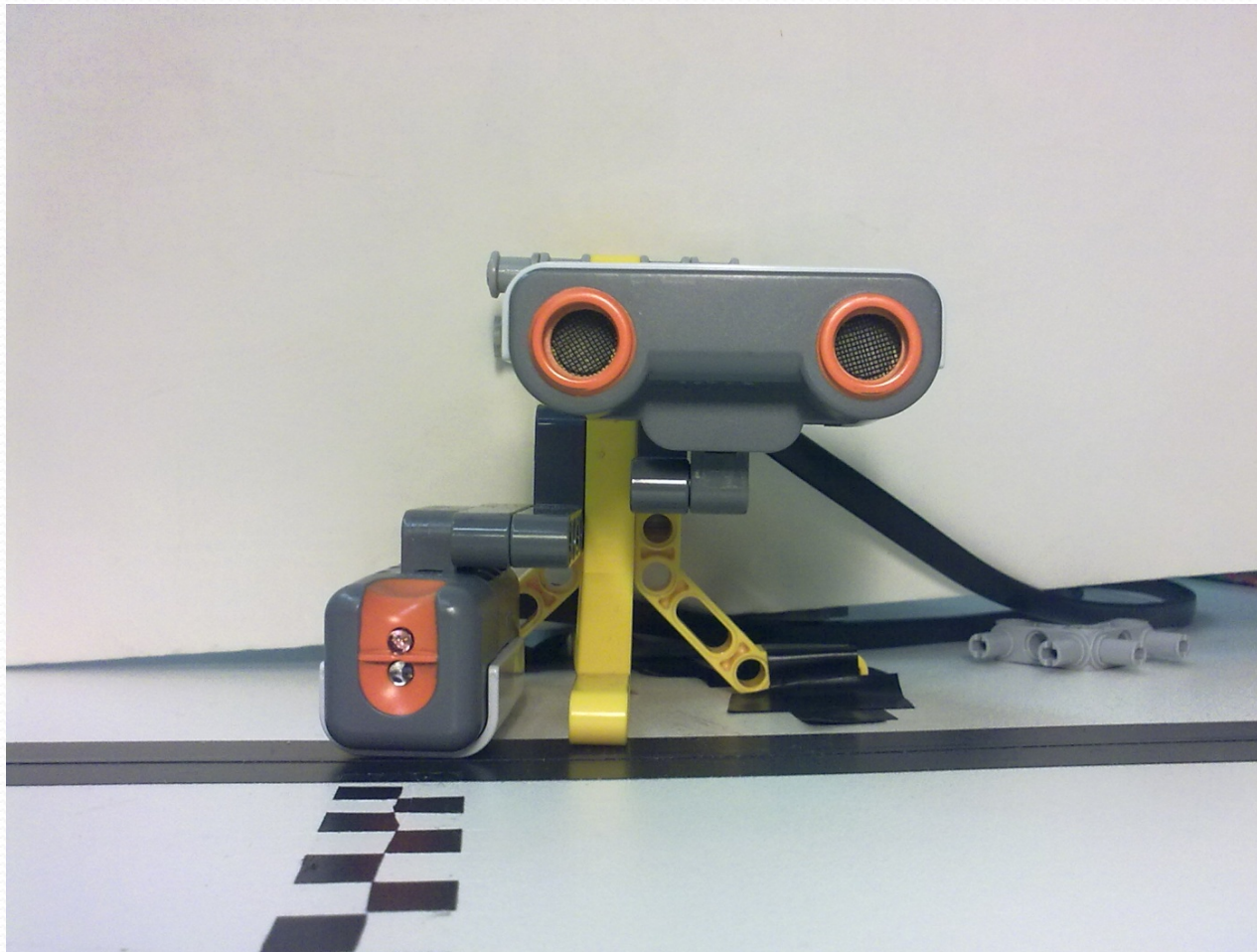
Team	Penalties
Team 1	xx
Team 2	xx

Final time:

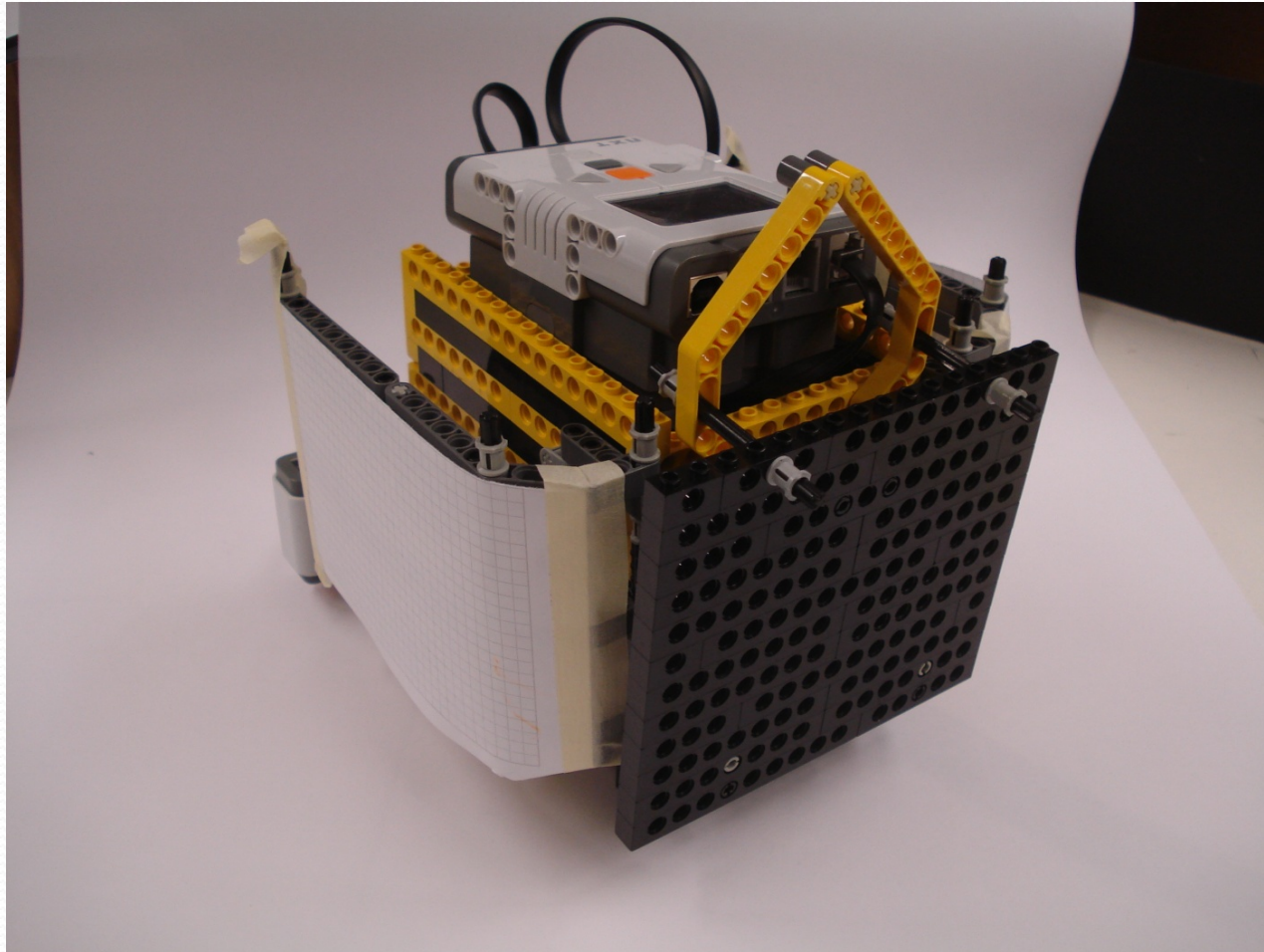
Team	Final time
Team 1	01:55:495
Team 2	01:18:463



Zeitmessung



Hindernisse



Team 1



Andreas Egli



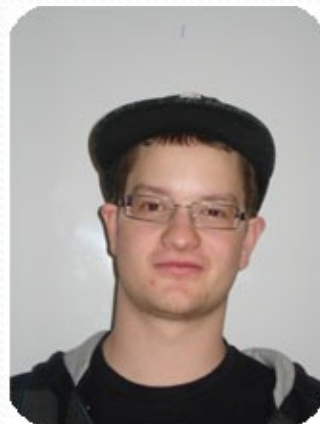
Christoph Gebauer



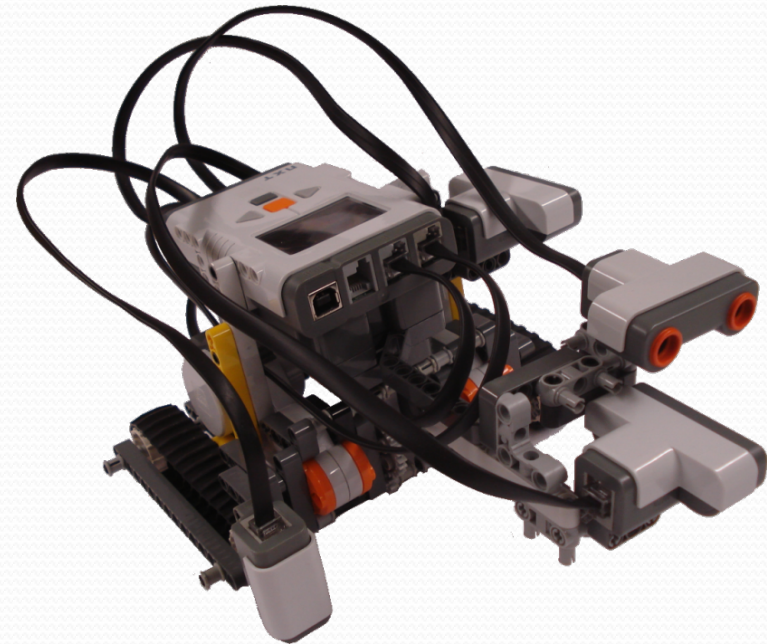
Yegor Gemba



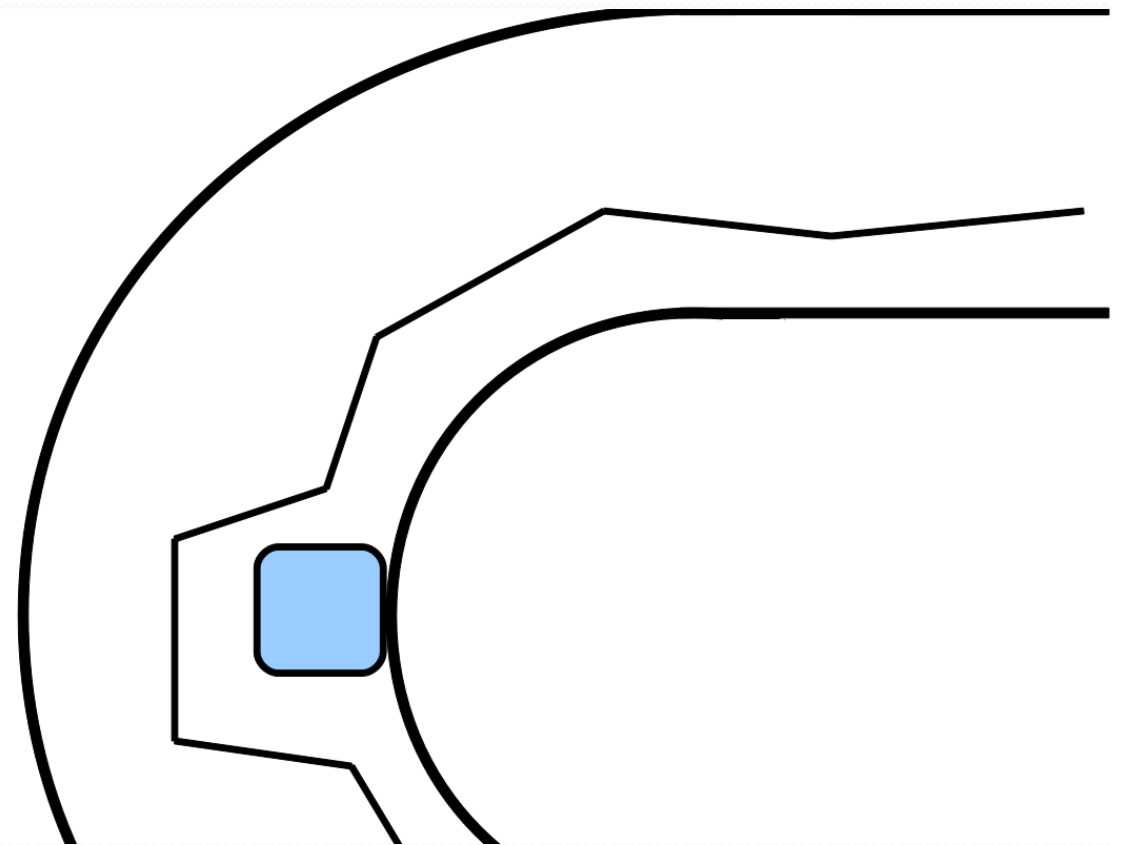
Dalibor Drzajic



Florian Elger



- Raupen
- 2 Ultraschallsensoren
- 1 Lichtsensor
- Abstand zur Wand konstant



Team 2



Adonis Engler



Andrea Capone



Fabio Banfi



Matthias Britt

Technische Daten

- **Masse**

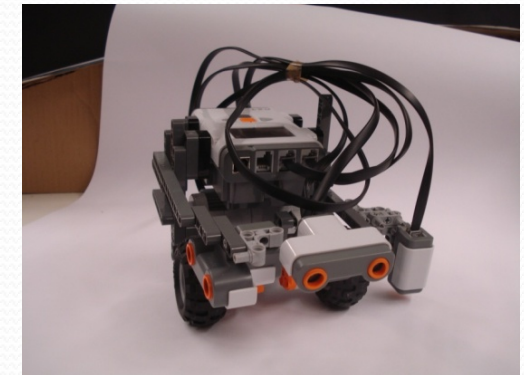
- Gewicht: 350 g
- Länge: 32 cm
- Breite: 21 cm

- **Fahrleistung**

- Höchstgeschwindigkeit: ≈ 15 km/h

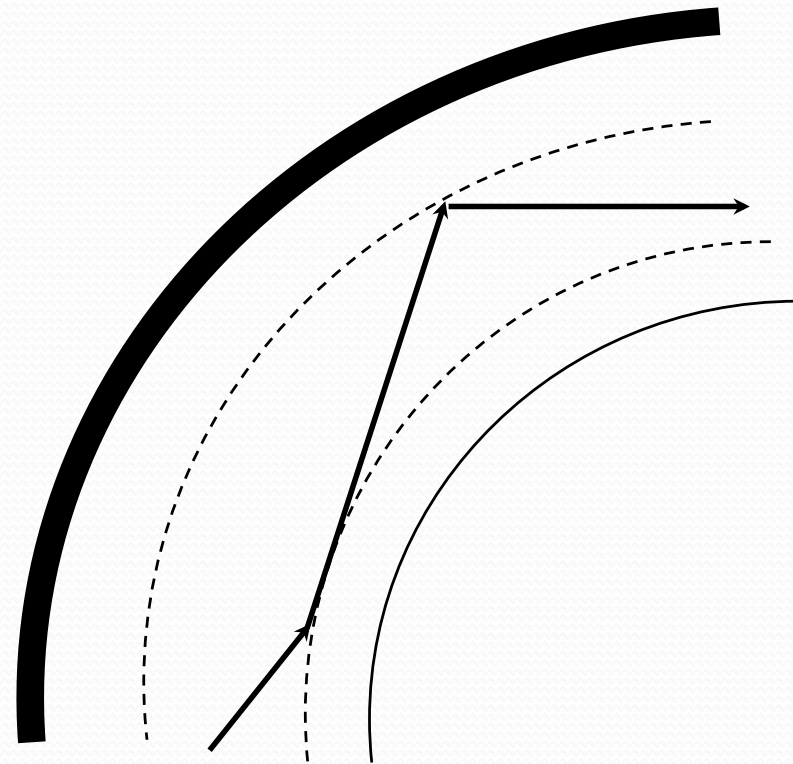
- **Ausstattung**

- 4 Ultraschallsensoren
- 2 Lego Mindstorms – Motoren
- Pirelli Reifen



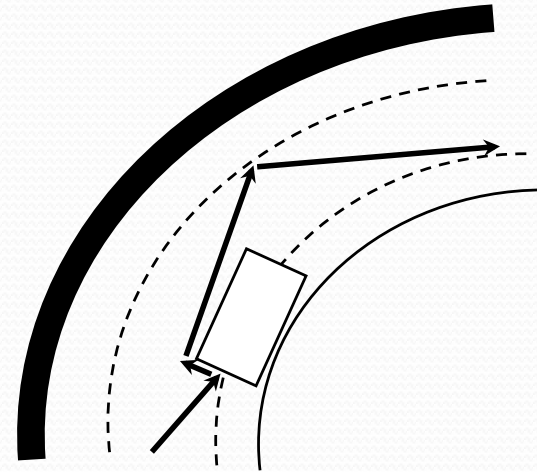
Renn - Strategie

- Weg ohne Hindernis



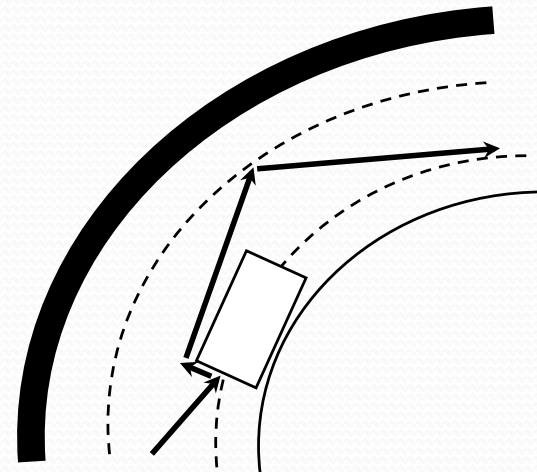
Renn - Strategie

- Weg mit Hindernis
 - Hindernis an der Wand

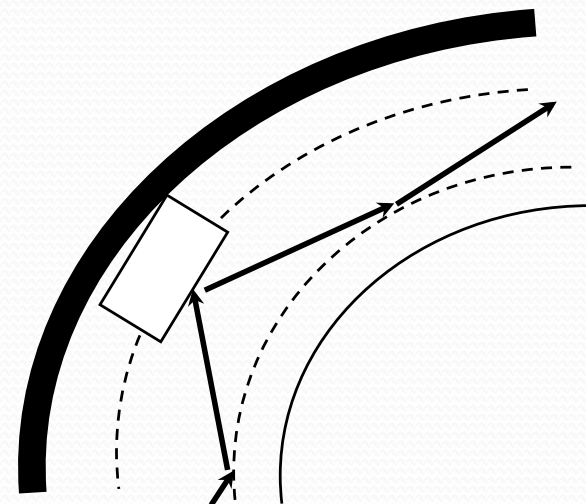


Renn - Strategie

- Weg mit Hindernis
 - Hindernis an der Wand

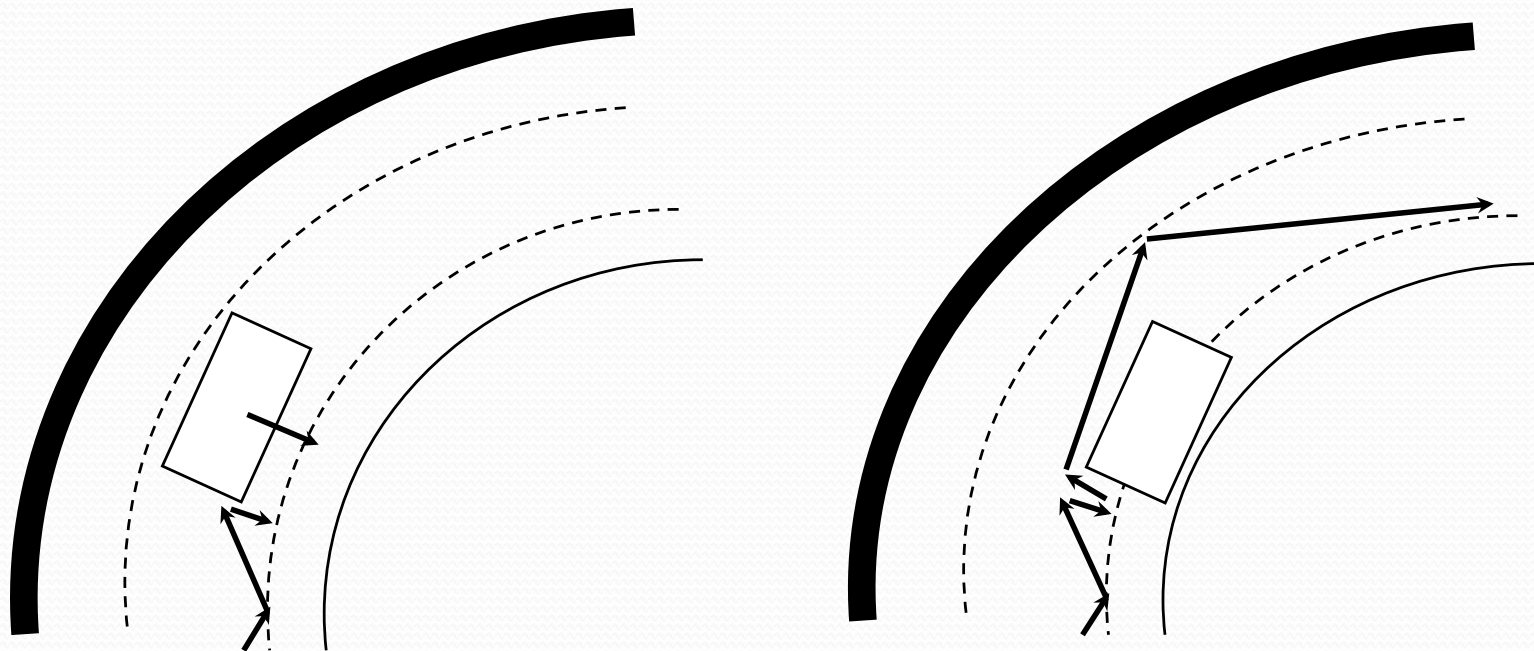


- Hindernis am Rand



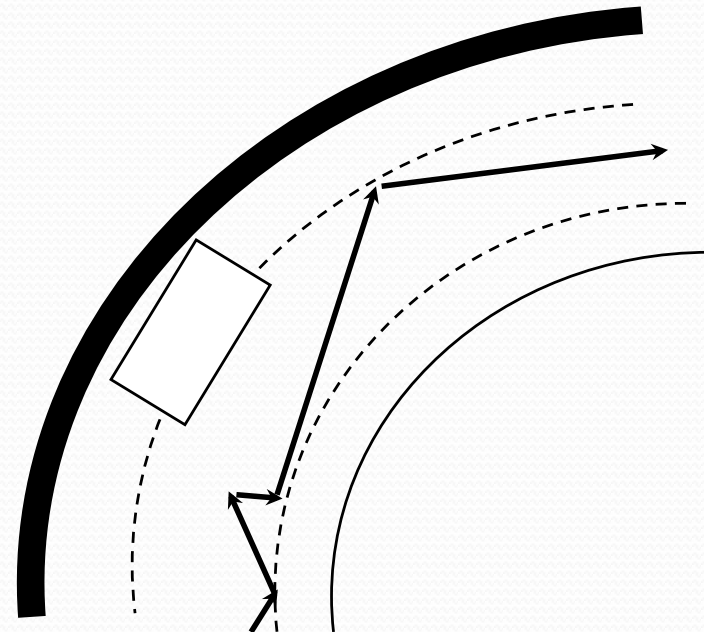
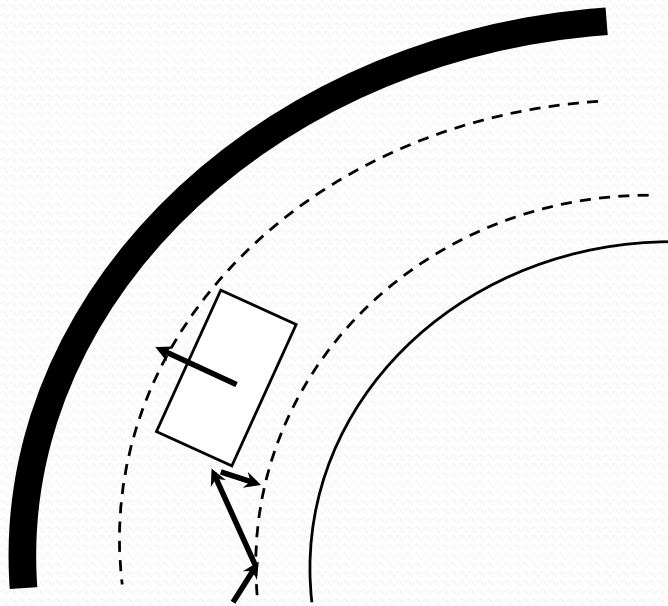
Renn - Strategie

- Weg mit Hindernis
 - Hindernis in Bewegung
 - Vom Rand zur Wand



Renn - Strategie

- Weg mit Hindernis
 - Hindernis in Bewegung
 - Von der Wand zum Rand



Fragen



Bluetooth – Funktion

Start der Autos:

```
#define INBOX 0
```

```
task main(){
```

```
    string request = "";
```

```
    while (StrLen(request)==0)    ReceiveMessage(INBOX,  
true, request);
```

```
}
```

Kommunikation der Hindernisse

```
#define INBOX 6
#define OUTBOX 6

mutex varChecker;
bool bt_touch = 0;

task btcomm() {
    string request;
    string response;
    bool tl_touch;

    while(true) {
        ReceiveMessage(INBOX, true, request); //get message from the Inbox

        if(StrLen(request)>0){ //check wether message was received

            Acquire(varChecker);
            tl_touch = bt_touch;
            bt_touch = false;
            Release(varChecker);

            if (tl_touch == true){ //check touch
                response = "Boing";
                tl_touch = false;
            }
            else response = "xxx";

            SendResponseString(OUTBOX, response); //put response in the outbox

            request="";
        }
    }
}
```

Übertragung der Zeit per Bluetooth

```
while(true) {
    ReceiveMessage(INBOX, true, request); //get message from the Inbox

    if (StrLen(request)>0) { //check wether message was received
        if (tl_ms > 0){ //check time
            if (tl_min/10 == 0){
                temp_response = NumToStr(tl_min);
                response = "0" + temp_response;}
            else response = NumToStr(tl_min);

            response = response + ".";
            tl_sec = tl_ms / 1000;
            if (tl_sec/10 == 0) response = response + "0";
            temp_response = NumToStr(tl_sec);
            response = response + temp_response;
            response = response + ".";
            tl_ms = tl_ms - (1000*tl_sec);
            if (tl_ms/100 == 0) response = response + "0";
            if (tl_ms/10 == 0) response = response + "0";
            temp_response = NumToStr(tl_ms);
            response = response + temp_response;
            tl_min = 0;
            tl_ms = 0;
        }
        else response = "xxx";

        SendResponseString(OUTBOX, response); //put response in the outbox

        request="";
    }
}
```