

# TEAM AVENGHERS!

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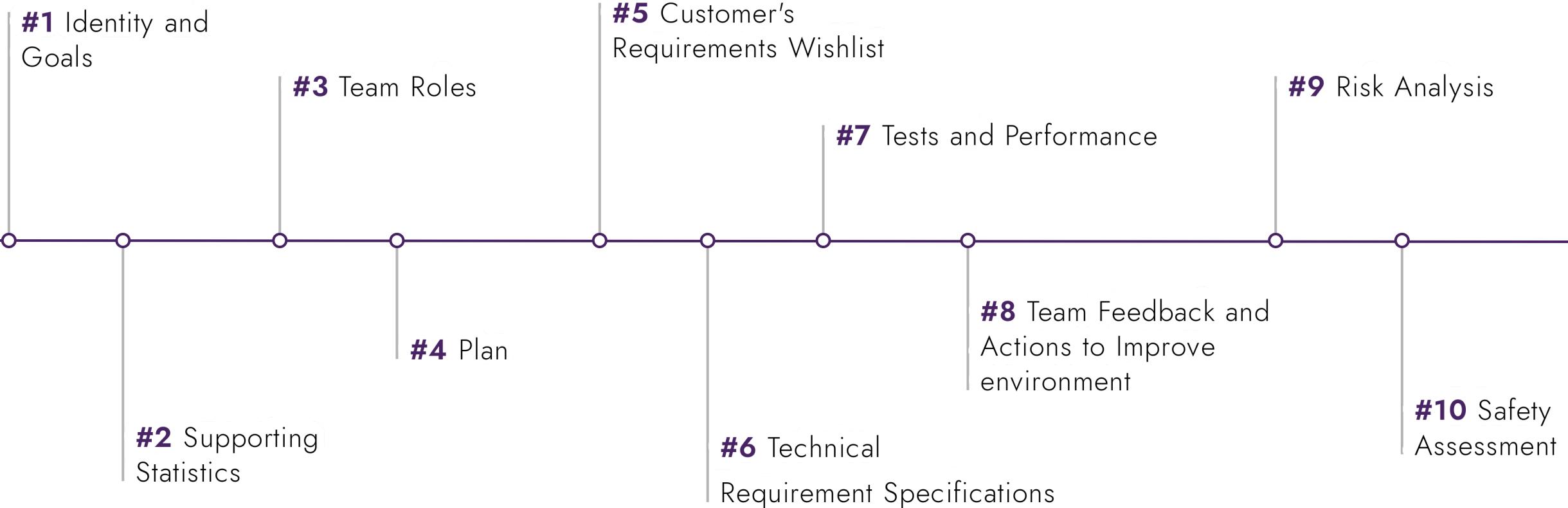
Elizaveta Spirina

Lorenz Schmidt

Marco Prange

Rene Bloeß

# TIMELINE



# IDENTITY



## Why Aveng**HER**s?

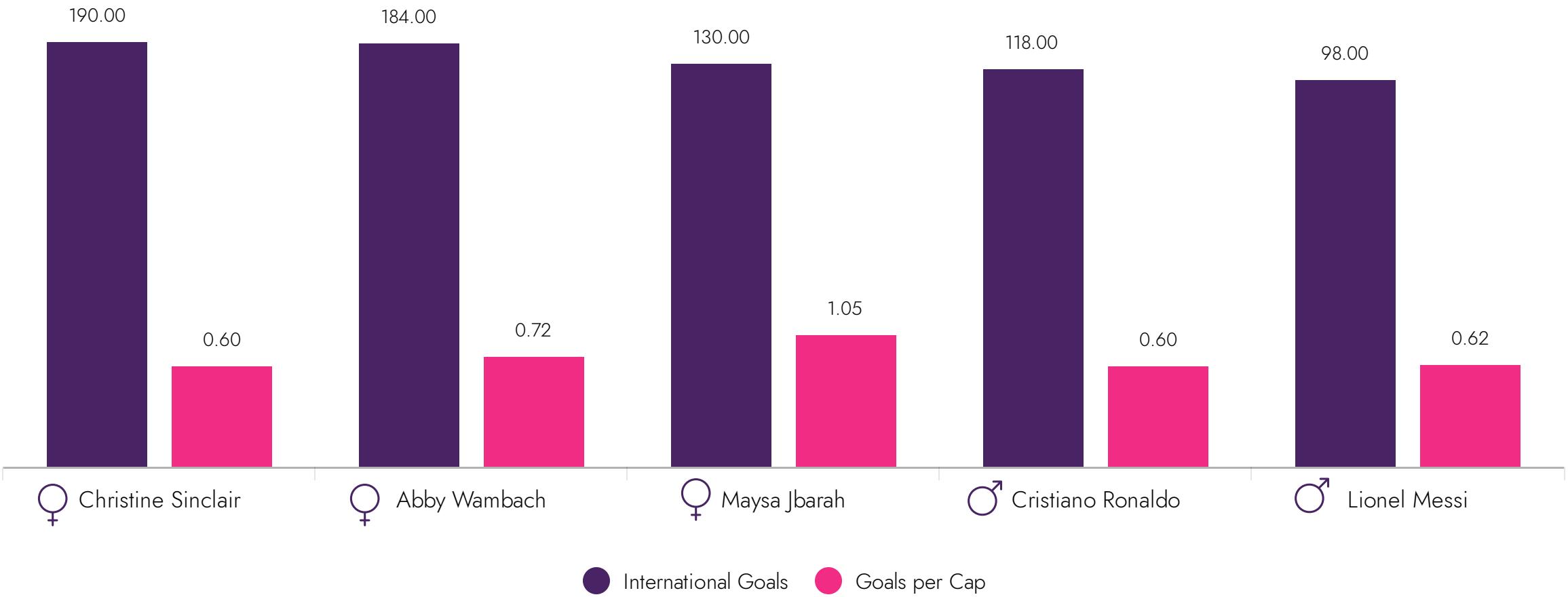
- **Celebrate** March as a **women's** history month.
- Raise **awareness** about **Women's Football**.
- **Revoke** Gender **Discrimination**

# GOALS

- Competition  
We're not just here to **play**, we're here to **slay!**
- Entertainment  
We promise a **funny** participation and experience ;)
- Awareness
  - Raise **awareness** about **Women's Football**.



# FOOTBALL STATISTICS



# TEAM



Abdelrahman Ebeed  
**Presentation & Reports**



Abdul Rehman  
**Assembly**



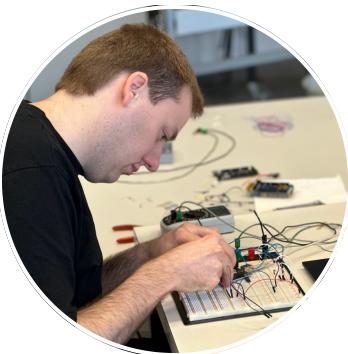
Debora Mensah  
**Supply & Design**



Elizaveta Spirina  
**Supply & Design**



Lorenz Schmidt  
**Testing & Debugging**



Marco Prange  
**Systems & Circuits**



Rene Bloeß  
**Programming**

# PLAN



Media, Presentations and Daily Reports



Robot Assembly and Testing Modules



Buying Materials and Decorating



Programming and Combined Testing Modules



Goal and Scoreboard Assembly and Testing

Day 1

Day 2

Day 3

Day 4

Day 5

Day 6

# CUSTOMER'S

## Requirements List

Requirement	Promise
Scale of the robot 20cm*20 cm at start and is placed correctly	<input checked="" type="checkbox"/>
Robot works autonomously	<input checked="" type="checkbox"/>
Robot switches floodlights autonomously	<input checked="" type="checkbox"/>
Game lasts at least 3 mins	<input checked="" type="checkbox"/>
Goal in 30cm*10cm dimensions and automatic Scoreboard	<input checked="" type="checkbox"/>
Defender in 10cm*10cm dimensions and placed correctly	<input checked="" type="checkbox"/>

# TECHNICAL REQUIREMENT SPECIFICATIONS

## Field

Goal Counter	Test	Result
<b>Counts the scored goals</b>	Throw a ball into the Goal from different angels and speeds.	Works, but has errors with timing
<b>Doesn't count backwards</b>	Throw a ball into the Goal from different angels and speeds.	Works
<b>Doesn't restart itself</b>	Trial and Error	Works
<b>Display the number of goals scored by the opponent</b>	Throw multiple balls one after another into the goal.	Works (not mounted yet) but there can be errors of double counting
<b>Can count at least 10 goals</b>	Score and let it count to 10.	Works
<b>Ball doesn't get trapped in goal</b>	Throw balls at the goal and with different velocities and see if it returns.	Works (10% Error at low speeds)

# TECHNICAL REQUIREMENT SPECIFICATIONS

## Field

Floodlights	Test	Result
<b>Start as soon as the Robot starts</b>	TBD	Works
<b>Last 3 Minutes</b>	Test Run the robot for three minutes at least	Works
<b>Shall be placed at both sides of the Board</b>	Assemble the lights and toggle the switch on	Works
<b>Illuminate the playing field</b>	Place Light Emitting Diodes on wires and mount on the wall	Works
<b>Flexible placeable</b>	Try to dismantle and reassemble the whole field	Works

# TECHNICAL REQUIREMENT SPECIFICATIONS

## Field

Buffer Zone	Test	Result
<b>Red colour</b>	Check the Hexadecimal (#FF0000) of the red color with the sensor	Works
<b>Starts from left to right and goes around our own playing field</b>	Take accurate measurements and validate them	Works
<b>Robot shall not touch it</b>	Let the Robot drive towards the line in the field	Works

# TECHNICAL REQUIREMENT SPECIFICATIONS

## Field

Field Dimensions	Measured
Starting Zone: 20cm*20cm	👍
Robot: 17*19.5 cm	👍
Maximum Speed: 0.468m/s	👍
Playing field: 120*120 in cm	👍
Field Color: RGB(154,205,50)	👍

# TECHNICAL REQUIREMENT SPECIFICATIONS

## The Robot

Red Light Detection	Test	Result
<b>Detect with left Sensor</b>	Drive against a line with only the left sensor	The color is detected
<b>Detect with right Sensor</b>	Drive against a line with only the right sensor	The color is detected
<b>Detect with both Sensors</b>	Drive against a line with both sensors	The color is detected

# TECHNICAL REQUIREMENT SPECIFICATIONS

## The Robot

Red Light Detection	Test	Result
<b>Right Sensor: detect the line, stop and turn</b>	Drive against a line with only left sensor	The Robot has contact with the line, drives back and turns right
<b>Left Sensor: detect the line, stop and turn</b>	Drive against a line with only right sensor	The Robot drives over the line and doesn't work as intended
<b>Both Sensors: detect the line, stop and turn</b>	Drive against line with both sensor	The Robot drives over the line and doesn't work as intended
<b>Roaming mode: Roam around at a slower speed</b>	Drive around in the playing field	Robot behaves as expected
<b>Ball detection: Detect a Ball inside the Robot</b>	Drive into a ball laying and firing into the Robot	Works as intended
<b>Defense Start: Drop a defense wall in front of the Goal</b>	Test the robot for the start and drop algorithm	Robot drops 4 Wooden Obstacles for protection

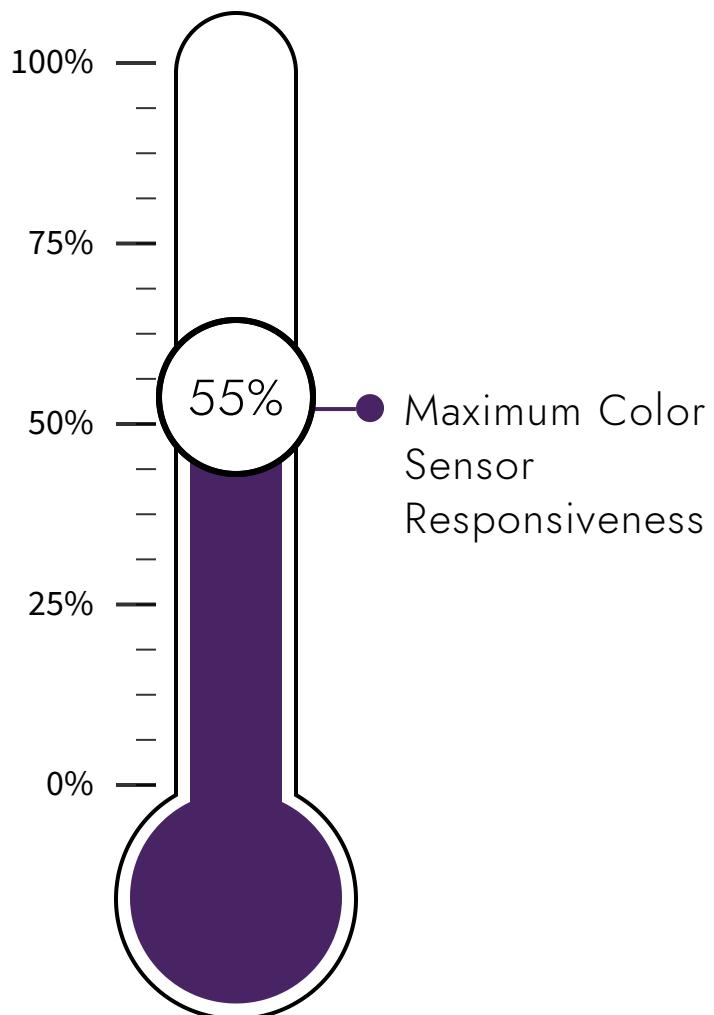
# TECHNICAL REQUIREMENT SPECIFICATIONS

## The Robot

Drop Detection	Test	Result
<b>Drive to the Dropping Position: Set a certain path where the Robot goes at Game Start</b>	Drive with different speeds, timings, and amount of wheels Rotations	Works , but distribution of obstacles is slightly inconsistent
<b>Drop the defense Wall: The slide mechanism drops the defense in front of the Goal to prevent goals</b>	Drive with different speeds, timings and amount of wheels Rotations of the dropping motor.	Works, but is relatively inconsistent

# PERFORMANCE

## Motor Capability



Obstacles Coverage  
80.0 cm

# HALFWAY THROUGH

## TEAM FEEDBACK



## ACTIONS TAKEN

To improve Working Environment

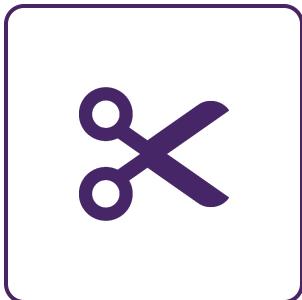
- Dealing with Stress  
Taking **breaks** and practicing **self-care** can also help alleviate stress and improve overall productivity within the group.
- Making Responsibilities Clear and Updated  
Have **regular check-ins** and clear **communication** channels to ensure everyone is on the same page. Also, set **buffer time!** Now set to 30 minutes.
- Sharing Feedbacks.  
Since we have already established a culture of **open** and **honest** communication, it's now important to provide specific **examples** and **actionable steps** for improvement to ensure that feedback is received **positively** and leads to **growth** and **development** within the team.

# RISK ANALYSIS

Risk	Impact	Counter	Test Result	Probability
Red light detection doesn't work	Over stepping the line, resulting in point loss.	Use another sensor or Fix calibration	Success	1%
Goal Sensor doesn't recognize a Goal or counts a Goal twice	Point loss for the testing shots, double counting.	Try different sensors and counting mechanisms	Success	30%
Defense Mechanism doesn't work	Goal could malfunction or count a goal without a ball.	Test different drop mechanisms	Success	20%
Shooting the Ball doesn't work or the ball isn't recognized	We cant score goals	Change sensor settings or the sensors entirely	Success	10%
Floodlights Fail	Minus points for missing lights or not start.	Try different methods of starting the mechanism	Success	1%

# SAFETY ASSESSMENT

Safety First!



## Scissors and Cutters

Be sure to hold them **firmly** and keep your fingers **clear** of the **blades**. Always cut **away** from **yourself** and avoid using **excessive force**, which can lead to **slips** and accidents.



## Glue Guns

Make sure the **cap** is **securely** in place when not in use and be careful not to get any **glue** on your **skin** or in your **eyes**. Always use these tools in a **well-lit** and **well-ventilated** area.



INNOVATIVE  
IMPACTFUL  
DYNAMIC  
COMPREHENSIVE  
ORGANIZED  
ACCURATE  
WELL-PLANNED  
EXEMPLARY  
EFFICIENT  
CREATIVE  
PRODUCITIVE  
INSPIRING  
PROFESSIONAL  
STRATEGIC  
ENGAGING  
EFFECTIVE  
COHESIVE  
SUCCESSFUL  
WELL-EXECUTED  
**AVENGHERS**