**Minutes of Meeting Tech United 13-02-2024**

The Following Questions were asked during the meeting and answers provided by the Tech United:

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| **Questions** | **Comments** |
| Which rules are hard to implement in the robot and are there chances of breaking the rules? | Collisions (soft is okay) are hard to implement. Deciding on which team is at fault when the robots collide. |
| What annoys you about the referee during the match | * When Matched tied. * Biased decisions * Not able to see the ball clearly resulting in partial decisions. * Ball in and out decisions. * Goal or NO Goal decisions |
| What do you minimally expect from an autonomous referee | * Ball in or out decisions * Who can take corner * When it’s goal or not * Collisions (optional) * Penalty Area Rules * Which team has touched the ball last time |
| What are **user needs**?  (In terms of Features to be implemented) | * Integration with Ref Box * Free kick * Throw in * Corner * Goal * Giving a Pass before a goal * Visualization (why a decision has been made) optional |
| **Capable to show proof**  (Proof or documentation of the decisions) | * Goal Line technology * A slow Replay with labels would be nice |
| **Objectivity**  Which features are indicative of a fair decision-making process | * Videos/Visualization techniques * Replays |
| Are there specific scenarios where you see potential challenges in maintaining objectivity? | Yes. Collisions are hard to predict that which team has made a mistake. |
| **Robustness**  What factors do you consider essential for the reliable operation of the autonomous referee in a dynamic and unpredictable environment like a robot soccer match? | * Electricity Power * Loss of Internet connection may result in loss of communication |
| **Real Time**  How long can you wait for a decision to be made when a fault occurs? | 1 sec at maximum |
| **Adaptability**  How often do the rules of the MSL changes every year | Every year rules change a bit |
| Have Tech United made some kind of autonomous referee for the soccer robot? If Yes, what systems and/or functions you may have developed | The one of the year MSD-2022 (previous year) |
| Which one is more important, the system that communicates with the RefBox directly or the module/function that the system use to make decisions (e.g. the class or the method)? | Functions/Methods are more important |
| Ball Spinning features | This feature in not mandatory during this phase of project but will be imperative in case of Fully Autonomous Referee |
| Penalty Area Rule | Only one Robot per team should be in penalty area apart from goal keeper and for 10 sec only. |
| Goal keeper Rules | Goal Keeper can extend up to 10cm at one side for 1 sec after every 5 sec. |
| Speed of Ball & Speed of Robots Rules | There is no such rules for speed of ball and speed of robots. |
| Stadium Cameras | Stadium Cameras are only for Tech United and not for other competitions |
|  | Robots can’t score a goal from their own half |
|  | Players are identified by filtering, player numbers, labels and unique ID’s |
|  | The backward dribbling distance for the robots is 1m |