Due to the covid-19 pandemic and the discontinuit of some components of robot and the absence of presencial competition, we use the time to make na overhaul in the Project. The main modifications are described below, our focus were made the in field maintance easier, as well as make it more reliable and perform better.  
  
Omni wheel

The robot omni wheel have been completely modified. The main objectives of this change were ease the manufacture and maintaince, as well as performance of the robot. The omni now features a single layer of 15 small wheels. Each small wheel are composse by a V-shaped comercial Bearing and a o-ring. The omni uses the same transmission as the pass, but once the omni wheel diameter were upgraded to 45 mm, allowing the robot to go faster.

In addition, the main bodies of the omni are now made by a machined alluminum alloy, giving it a better resistance and lowing the center of mass. This will make more easy to maintain, although more expensive.

Futhermore, the motor supports are symmetrical to the omnis. This change will make it more cheap to machine the pieces and will make all for wheels interchageble, easing the in field maintance, and now They are easy to change, as They are not a strutural part, are just fixed robot structure

New Motors

All motors of the robot were changed and upgraded. Now all or motors are brusshed 12V dc motors, providing more torque than before. As its new motors came with a factory encoder, the reads of motor speed are more precise, witch lets a better control by Eletronic.

In addition, the position of the main motors were change to permits a better allocation of the kick sistem, once They are bigger than the previous one. Beside that, this modfication permits a better speed in y-axis.(See image below)

The new dribler motor will allow us to a more precise control of dribbler speeds, allowing us to, by lab tests, a more precise ball control in future. As well as simplifing the eletronic of the robot.

Kick system

Although the previous kick system worked well in ROBOCUP 2019, it was possible to see that there were space for improviments. There were two main points to be observed. The precision of the kick and the durability of the system.

The main change made were the substitution of all pla pieces by alluminum alloy, this change were necessary to reduce the space ocupied by the kick system to accomodate the driving motors.

Other bigger change were in low kick and high kick plate, both were substitute from pla to alluminum alloy, to reduce the wearing out in game and permits a narrow plate in high kick providing more space to the rest of system and more reliable parts.

The main change in pistons are the material, They are now made by Ferric inox to be more resistent to corrosion and They are both of the same size, to be easier to manufacture and be interchangeble.

Other Minor Changes

Due to the changes in motors we had to modify almost all of the aspects of robot. Beside the main subjects treated before, its Worth to describe some Other minor changes. We changed the dribbler roll format and material, in order to obtain a more gripper surface. Our change in voltage led us to change our battery, hence the support. Other minor change were the addition of a LED display for Telemetry.