

Behind the MOC: The Making of the RI5 Wooden Truck

For this issue of Hispabrick Magazine with its overall theme of "On the Road", I was inspired to create a LEGO Mindstorms model of an early LEGO wooden truck toy originally released between 1930 and 1940. You can see a picture of this truck at the following link: https://brickipedia.fandom.com/wiki/Wooden_Truck_4

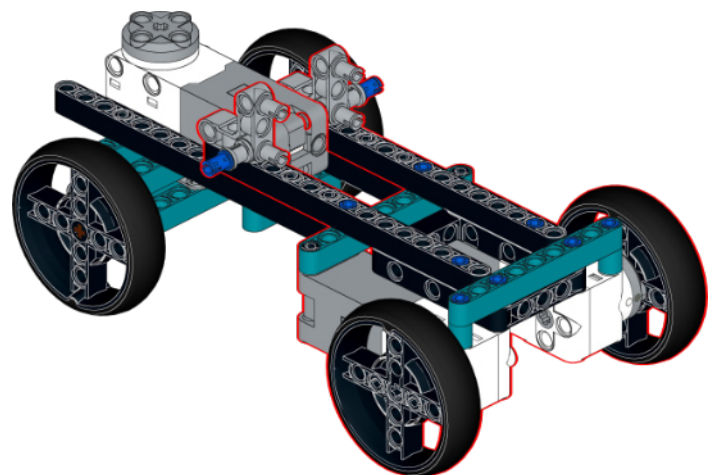
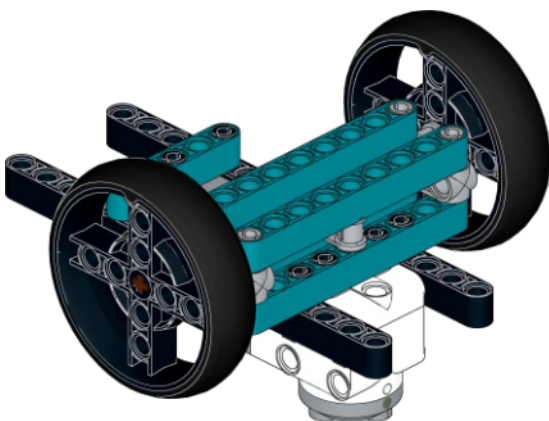
In this brief article, I'd like to share how I went about creating the model.

The first step was the model selection. I had seen a model of the early LEGO wooden truck during a virtual visit of the LEGO House, but I could not remember exactly what it looked like. Googling for LEGO wooden toys led me to Brickipedia, which has a page covering all the wooden toys that LEGO have made (https://brickipedia.fandom.com/wiki/Wooden_Toys). While perusing this page, I saw the wooden truck shown in the link above. I was attracted to this truck because it had six large wheels, and there are also six large wheels in the 51515 set.

The most complicated part of the build would be the steering mechanism, so I decided to start there. The mechanism was inspired by a design I saw years ago in a book by Laurens Valk, titled *The LEGO Mindstorms EV3*

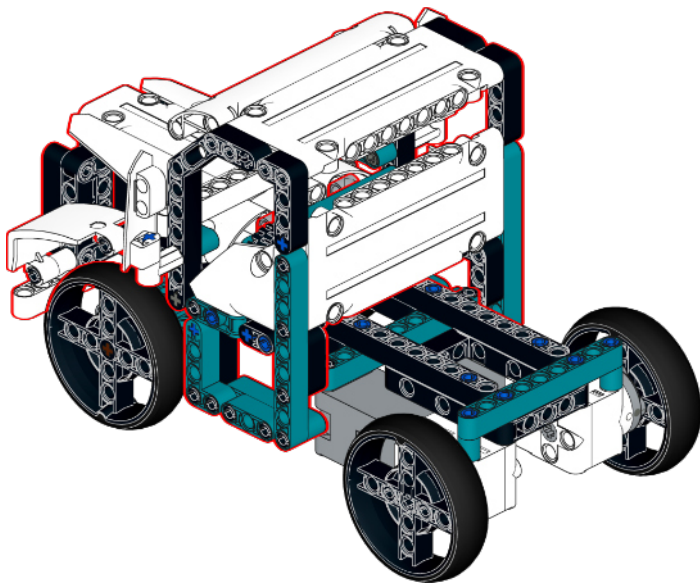
Discovery Book. I went through a few iterations until I was happy with it. It's actually much simpler than the EV3 version shown in the book due to how the RI5 medium motor is designed.

Once the steering mechanism was done I realized that there had to be a way to support the driving wheels at the back. I experimented by adding liftarms beside the medium motor, and after a few iterations I had a complete chassis with two medium motors at the back, each driving one wheel. I could have used a differential but I chose not to, because having each



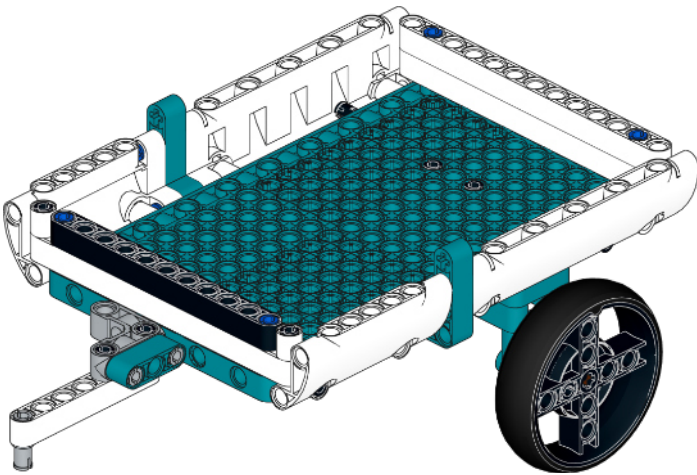
wheel independently driven meant that I could program different speeds for each motor later, in effect acting as a software differential.

I then tackled each component in turn, starting with the front grille, followed by the bonnet, front mudguards, and cabin. I did not plan anything

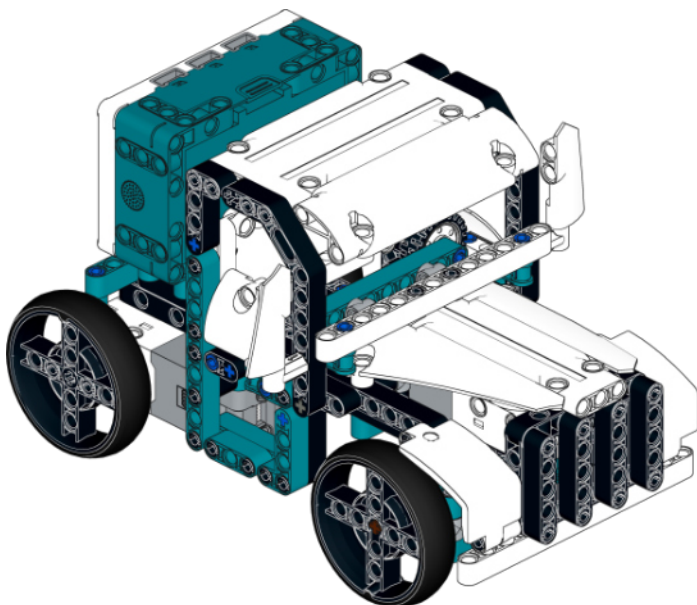


initially – the process was just one of adding various parts until I was happy with how it looked.

With the truck complete I then started on the trailer. This was a pretty straightforward build. Again, I did not plan things, and just added parts until



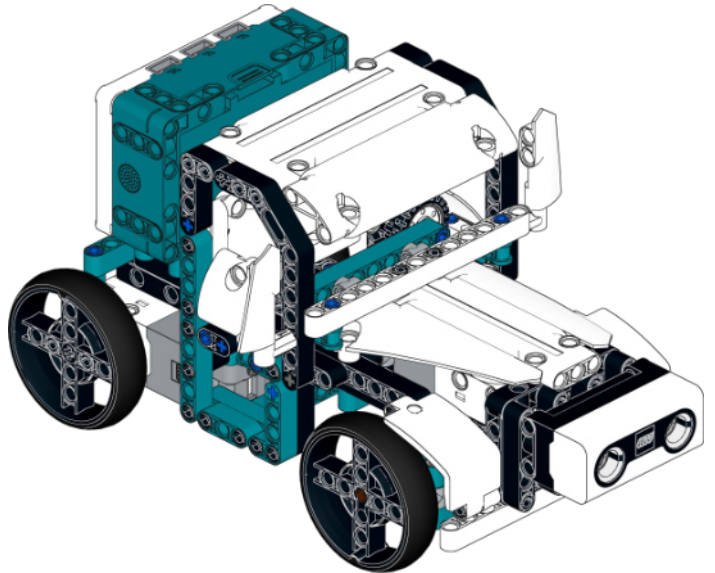
I was happy with the result. Initially I had thought of putting the RI5 brick on the trailer but then I realized that by putting it just behind the cab, all the wires from the different motors could be connected easily and it would also



put some weight on the driving wheels to provide good traction. This placement also made it easier to charge by making the USB port easily accessible.

Next up was adding the Ultrasonic sensor. This was a bit of an afterthought, but I found that it could be mounted easily on the front grille, and I could then run the wires under the chassis to the brick.

The final step was programming the truck. I wanted it to move forward until an obstacle was detected, at which point the truck would reverse and turn, before going off in a new direction. I found that the connection to the trailer had to be extended for it to work reasonably well.



I also found that the front wheels would rub against the top of the bodywork, so I had to remove some parts to make sure the front wheels could turn unhindered. I could always have added parts to increase clearance for the front suspension, but this would have meant that both the rear drive motors and the trailer would also have to be modified, so I chose not to.

The whole process took me roughly four hours, and at the end I had a cool truck that would hopefully be fun to play with.

You can find the complete photo-based building instructions here: <https://www.youtube.com/watch?v=py-uXbFB93A>

I hope that this article has been interesting and informative, and I look forward to writing more articles for the next issue.

