CHAPTER 8

The Gargantuan-Bot Chassis

Many people get hung up on one idea when they first start doing LEGO MINDSTORMS robotic sumo: pushing power, strength, and toughness are what matter most. As I've stressed in the previous chapters, these are not the deciding factors. You must take many other factors into account to make a successful and realistic sumo-bot.

However, with the big-sumo strategy, things are different: pushing power, strength, and toughness are what matter most! Now please don't get me wrong; there are many other aspects that are quite important in the big-sumo strategy. But, overall, the big-sumo strategy is so much different than the previous strategies that we have covered that this common "rule" has been overruled.

Going with the toughness approach, the Gargantuan-Bot chassis, shown in Figure 8-1, uses four motors, all of which are for powering the wheels. All of the motors are put on just two output ports of the RCX—the left side's motors on one output port, the right side's motors on another—which leaves a free output port for later use. Gargantuan-Bot has many other interesting features, as you'll discover during the construction process.

Figure 8-1. Completed Gargantuan-Bot chassis
Why Cover the Big-Sumo Strategy?

Whenever people think about LEGO MINDSTORMS robotic sumo, they often imagine the sumo-bots to be something like the Zip-Bam-Bot series presented in Part Two of this book: small, fast, and relatively simple. Indeed, most LEGO MINDSTORMS robotic sumo events revolve around sumo-bots like Zip-Bam-Bot. They are engaging to make, fun to watch, and usually easy to program. But then there are those other events: ones where serious MINDSTORMS fans who own thousands of parts, have years of experience, and are familiar with many programming languages make macho sumo-bots and duke it out.

Does this mean only a handful of people can make and compete with big sumo-bots? No, anyone with enough parts can make a big sumo-bot. It is true that the more experienced and serious fans are the ones who make huge sumo-bots and host events for them, but that doesn’t mean you can’t join in on the fun!

But why even cover the big-sumo strategy if it’s not quite as common as other forms of robotic sumo? After all, as I pointed out, most people will be doing robotic sumo on a smaller scale. The reason is that people like seeing huge robots, and they like seeing them fight each other. There is something awe-inspiring in seeing a four-pound LEGO MINDSTORMS sumo-bot, and there is an unforgettable excitement that only the big-sumo strategy holds. Not only is it fun to watch huge robots, building your own gargantuan sumo-bot is special and exhilarating. It all goes back to bigness—people simply like big robots.

My hope is that Gargantuan-Bot will inspire you, even if you won’t be able to build it due to lack of parts. Whatever your situation, get ready to see one big LEGO MINDSTORMS sumo-bot!

Building the Gargantuan-Bot Chassis

Gargantuan-Bot: the very name evokes an image of a colossal monstrosity. And that’s exactly what Gargantuan-Bot is and what the big-sumo strategy is all about. Since this sumo-bot is so large, we’ll need a very organized construction.

The Gargantuan-Bot chassis is much like a square. If that’s the case, why not make four little squares that snap together to make the one big square, the chassis? That’s exactly what we’ll do, and I’ll call these four little squares quarter subassemblies since they each make up a quarter of the model. We also have two motor bulk subassemblies, two key subassemblies, two middle connector subassemblies, and two side frame subassemblies. You’ll see exactly what they are and what they do in their construction sections.

Gargantuan-Bot is constructed out of pieces from two RIS sets, two Exploration Mars Expansion Packs (EMEP), and the Ultimate Builders Expansion Pack (UBEP). Its bill of materials is shown in Figure 8-2.