

## The Real Iron Man Suit



Picture 1: Lady wearing PowerLoader Light [2] [3]

Iron Man - Marvel superhero, national icon, and a great Halloween costume. Everyone knows that Iron Man is a highly engineered robotic exoskeleton, but what they don't know is that there is something just like that on the market today. The PowerLoader Light, descendent of the original Japanese PowerLoader which weighed at a bulky 507 lbs. Now at a "light" 84lbs., it has the capability to lift up to 88lbs. easily with just the lift of your arm.

Another Robotic Exoskeleton that is in the market right now is REX. REX is basically another set of legs that handicapped people wear over their real legs so they can walk, go up stairs, and turn. It can even offer you stability when it's turned off so you can do multiple tasks without needing crutches. REX moves by controlling a joystick in the direction that you want it to walk in. With REX handicapped people now have the ability to cook in a kitchen, reach for things on high shelves, and do any other task that requires standing. REX is so stable that one man can swing around in it and it still won't fall over (kind of like a weeble wobble). REX is a huge step forward and an even bigger step for handicapped people.



Picture 2: Handicapped man using REX [1]

## What I Learned About Building

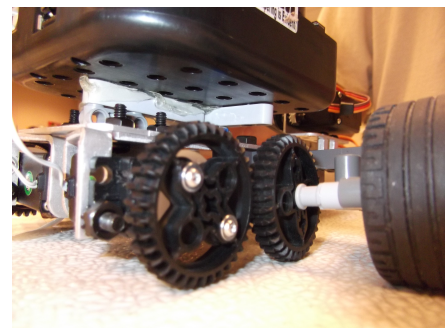
From these Robotic Exoskeletons I learned many things. But what I mostly learned is that a sturdy well built structure is the best design for a robot in Botball. Another great building technique is to use gears. Gears can create force or speed, but you can't have both. Gears also solve the problem of wobbly wheels so they don't project you in the wrong direction. For an example of geared wheels - See Picture 3.

## Botball

Botball is an educational robotics program which teaches boys and girls of different ages from college to middle school how to program a CBC to complete tasks that are offered on the game board. I found Botball to be a very good experience for me for when I become a Robotics Engineer as my career. When I started Botball this year I knew absolutely nothing about KISS-C programming or using metal with legos, but what I did know was that I could learn. We didn't have much time left till the first tournament so I had to learn quickly, so I would open up the KISS-C programming guide and read the different programming lines needed to make a successful program. I also got help from my team members and wonderful mentor Mrs. Reynolds.

Soon enough I was ready to program and build a robot to drop and pick up the paper airplanes. The very first Botball tournament I have ever been to, it was very nerve racking yet exciting at the same time.

There were lots of other teams there, as well as the four teams from my school. At the end of the day my school came out as the best robotics school in all of Southern California, Mexico, and Arizona. I was so proud of myself knowing that I was a robotics champion, something I only dreamed of being now coming true. Now with GCER coming up my anticipation grows as the time grows shorter. Knowing that GCER is going to be a fun exciting experience, so I don't stress about the time but focus on my programming. All these new skills I am capable of now that I can use in my future, all because I joined Botball.



Picture 3 Student designed robot with geared wheels [4]

## Bibliography

- [1] <<http://www.engadget.com/2010/07/15/rex-the-robotic-exoskeleton-aims-to-make-wheelchairs-obsolete/>>
- [2] <<http://www.crunchgear.com/2010/10/26/power-loader-light-panasonic-starts-selling-mecha-robot-suits/>>
- [3] <<http://www.engadget.com/2010/10/25/panasonics-power-loader-light-slims-down-stays-out-of-fights-w/>>
- [4] Original Photo Dakota Johnson