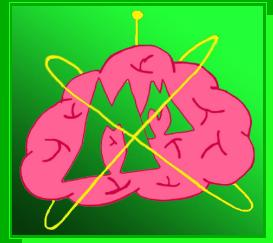




Martian Minds Issue #5



April
2015

"Polycarbonate is music to my ears." - Jon
"Wub wub." - Polycarbonate

State!

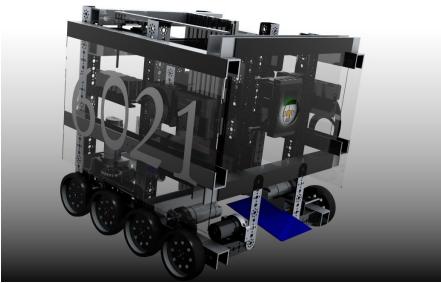
In the weeks before our departure to State, our team faced many challenges. Preparations were chaotic. One of the first issues we had to deal with was a broken chain braker. Without having the correct lengths of chain Marvin's chassis was inoperable. So the whole build team had to break the chains manually. It was no easy task. Furthermore, the ball lift didn't dispense balls into the rolling goals because it tilted too far to the side. We had to move the rolling goal manipulator further to the side so that the balls would drop in. Two other long lasting problems were the incorrect lengths of c-channels and the incorrect placement of drill holes. There was defective programming on top of everything else which prevented us from obtaining any kind of drive practice prior to State Competition. The c-channel lengths continued to affect us up to the day before competition.

We attended judging and inspections the night before the tournament. Judging went fairly well. However when inspections came along, Marvin failed to meet the size requirements because his c-channels were too long. This caused his wheels to exceed the robot size limit. Luckily, there was a shoproom available and we were able to shave the wheels down. Otherwise, we wouldn't have been able to pass inspections and that would've disqualified us from the competition.

When we did compete the next day, we can't say that we performed as well as we would've liked to, but throughout this FTC season we overcame many challenges. Going to state was a great learning experience and a lot of fun. Our team ranked 21st out of 24 teams in the Galaxy division. The judges notes said good things about our outreach, business plan, communication skills, and the overall concept of our robot.



**We proudly present
Marvin 3.0!**



Dimensions:

Width-17 $\frac{3}{4}$ in.

Length-17 $\frac{3}{4}$ in.

Height-17 $\frac{15}{16}$ in.

Features:

Robot Structure- Constructed using extruded aluminum c-channels and Tetrix c-channels. Body panelling made from polycarbonate to provide durable protection for electrical components and keep game objects out of robot.

Electrical System- Powered by 12v battery, controlled with Lego Mindstorms NXT, motor controllers mounted on

polycarbonate to protect from ESD and for better wire management.

Drivetrain- 8 wheel, 4 motor (back motor mounted vertically on bevel gears to save space), chain and sprocket drivetrain.
Ball Lift System- 4 stage lift constructed from 80/20 10 series aluminum t-slotted extrusions capable of reaching 5 ft. Winch driven by 1 motor mounted using bevel gears with a 2:1 gear ratio, and a spool 3 $\frac{1}{5}$ " in diameter.

Wiffle Ball Manipulation System- Secures rolling goal with hook at the back of robot, collects wiffle balls in the front, and dispenses them out the back into rolling goal. Wiffle ball box constructed with polycarbonate and cardboard.
Equipped with kickstand hook to release wiffle balls onto playing field.

Sponsor Spotlight!

In this issue, we'd like to thank Essentia Health – Sandstone for their financial support in the weeks prior to our competing at State. Essentia Health – Sandstone is a hospital that provides much needed medical care to our community of Pine County, as well as others. We're extremely grateful for their aid. You can find out more about Essentia Health – Sandstone at: <http://www.essentiahealth.org/sandstone/find-a-clinic/essentia-healthsandstone-57.aspx>



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If you would like to be added to this list of fine sponsors, or if you would like to find out more about Martian Minds, please refer to the Contact Information in the bottom left corner.

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Sandstone

**Notes from the River
St. Croix River**



Sandstone

PTC®



In Forest Lake

**In addition to our Sponsors, we would like to thank the
following people who have contributed to our team!**

Heidi & Loren Armstrong
Lynae Armstrong
Alex Buzo
Casimira Buzo
Ramon & Marta Buzo
Bill Eikost
Bill & Shawn Jansen
Justin Jerzak
Al Johnson
Barb Nygren
Andrew Maxwell-Parish
Bryce & Gina Shervheim
Lawrence Whittaker



THANK YOU and see you next year!