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# TEAM BUILDING WITH MCGILL ROBOTICS

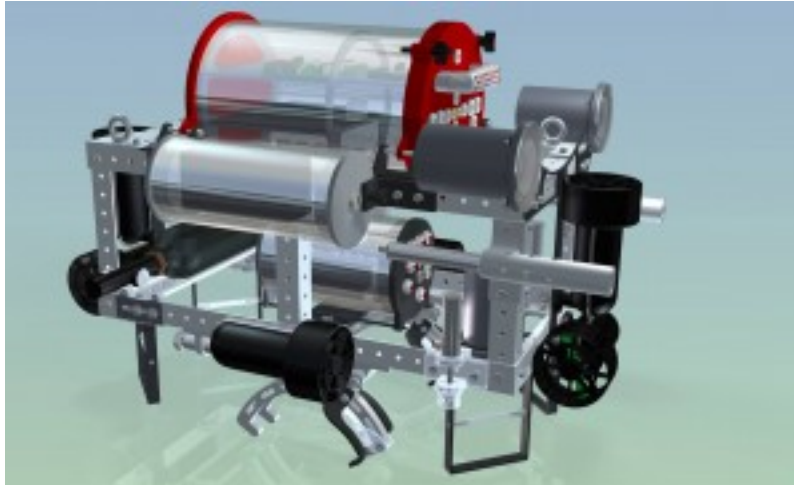
As the academic year comes to its close, McGill Robotics project manager Nick Speal stresses deadlines. Constant reminders via Podio (our project management software of choice) prompt us to meet goals, congratulate us on our immense progress, and suggest that at the end of the day, what we will remember most from the semester are the skills we've learned and the pride we have for what we've almost fully completed.



*El Gordo, LunarEx's lunar rover from last year.*

An internationally recognized engineering design team, McGill Robotics was preceded by LunarEx—a group that competed in the NASA Lunabotics Mining Competition, placing twelfth overall last summer. When NASA decided to limit the competition to American

universities, many LunarEx members became available to lend their experience to the nascent McGill Robotics, then in need of leaders. Robotics is the most interdisciplinary design team at McGill, consisting of the AUV and CanSat design teams and a business team that organizes sponsorship and promotion.



*CAD model of the AUV robot*

The AUV design team—the largest section of McGill Robotics—is developing a completely autonomous underwater vehicle for the RoboSub competition in San Diego this summer. Its four divisions—electrical, software, mechanical, and systems—account for specialization of labor in the comprehensive effort. CanSat, a smaller team, is building an atmospheric descent vehicle for the CanSat competition; it was established when a Robotics member approached Speal with a desire to enter the contest and is reminiscent of a certain kind of openness in the team. McGill Robotics is looking to grow and wants to help its members start new design projects for different competitions. A more experimental section under the Robotics umbrella, RoboVentures, works to provide less experienced students with the opportunity to work on and learn about robotics outside of a competition setting.

Robotics has deepened my grasp of the extensiveness of the engineering process, ranging from early brainstorming and prototyping to later debugging, implementation, and testing. Robotics uses the most up-to-date tools available, such as CAD modeling, Robot Operating System (ROS), Github, 3D printing, openCV, and Ubuntu OS. It also tries to disseminate knowledge across disciplines with its bi-weekly demos in which different parts of

the team showcase their accomplishments and goals. More importantly, anyone is welcome to help out in any division, regardless of particular area of expertise. There are equal emphases on shared and self learning; the McGill Robotics framework easily encourages both.



*RoboVentures displaying their robot during Valentines day*

The stress on community makes McGill Robotics distinct. Members of the team are full-time students with heavy course loads, yet all still find time to dedicate countless hours each week to Robotics. Why? Members are motivated by their projects—they believe in the McGill Robotics cause—and most importantly, they care about each other. For many, McGill Robotics is a primary home; to fall through is to, in effect, fail on family. The closeness of the McGill Robotics community is really what makes it special—a fact clearly represented by Robotics’ mantra, “Team Before Machine,” a philosophically-rich tenet Speal coined after watching a video of Claude Rouelle, President of OptimumG and a design judge for the Formula SAE series, give advice for future SAE teams. As Speal describes of Rouelle’s advice:

“If you want to build an A car... in your first year you shouldn’t focus on trying to build the best car you can, you should focus on building the best team... if you focus on building the best car you can the first year and you don’t focus on the team, then you don’t have any

room for growth... [Instead,] focus on having an A team and a C car and you'll end up with an A car too."

The notion of "team before machine" might be refreshing against a backdrop of corporate culture where quantity is emphasized over quality, reminding us to prioritize the development of the dimensional individual over the attractive prospective employee. When Speal asks us what we will remember most about our semester—the classes we took at McGill or the friendships and accomplishments we made in McGill Robotics—he speaks to a larger question: what defines meaning in our lives, what do we truly want, and how can we get it? I believe we measure our lives by the quality of our interactions with others, and in McGill Robotics, I've had the fortune to oversee great hallmarks of human excellence—insight, wisdom, justice, resourcefulness, courage, and originality.

McGill Robotics is first and foremost an engineering design team; its primary focus is scientific. But it's also an experience—one that has greatly influenced the development of its members as engineers, as students, as future tech employees, and most importantly, as human beings.



*The team.*

Check out McGill Robotics at their website: <http://www.mcgillrobotics.com/>

or their facebook: <https://www.facebook.com/mcgillrobotics>