Crystal Clear Collection

Le, Kevin
Campos, Brandon
Morales, Rodney

Because of the technology available in today's modern world, scientists have recently discovered ice on Mars. The question is: how can scientists confidently determine whether or not the ice is actual H2O rather than another liquid or substance? If scientists can confirm that there is H2O on another planet, it could open many doors to a future of endless possibilities. That being said, the purpose of this project is to design a robot capable of sorting ice (modeled by marbles) based on opacity. It was hypothesized that if a marble is placed through the opacity processing system, the robot can evaluate the marble's Lux value to determine whether or not the marble is valid. The procedure requires a large amount of time. Brainstorming, designing, and drafting are crucial first steps. Once a design is chosen, creating the robot is next. This project requires the robot to be split into two parts: the rover and the opacity processing system. By following the basic design, along with trial and error, the opacity processing system and collection rover were built using Fischertechnik components and VEX robotics parts. Once the machines were assembled, they were wired, programmed, and debugged using ROBO Pro and EasyC software. In the end, the hypothesis was correct. The rover was able to transfer marbles into the opacity processing system, and once the marbles were loaded, the system classified each marble as it passed through. Based on the opacity, the system successfully sorted the "good" marbles from the "bad".

Awards Won: