



Colorado Science and Engineering Fair

2024 Team Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: B.O.B. (Building On Blocks) Year 2 Testing Ice Safety

Team Leader's Name: Ana Alarcon Palacios

Team Member 1: Matthew De Groot

Team Member 2:

School and City: Yuma High School, Yuma

Sponsor's Name: Amy Melby

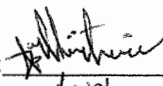
Category: Engineering (ENGR)

Division: Senior (9th - 12th grades)

Abstract (250 words or less):

Every year, the number of people that have fallen through ice increases as temperatures start fluctuating closer and closer to the freezing and melting point of water. The engineering goal of Building On Blocks (B.O.B.) was to build a remote controlled rover that could measure the thickness of ice and determine its safety. The prototype was built out of Legos and then finalized with wood. The microcontroller and the code were from the same company, making it easy to code and control with a remote. A drill was attached along with a mechanism to lower it and turn it on at the driver's will. A speed test was conducted to see how long it took the drill to get through a certain thickness of ice. With the numbers achieved, the researcher found the rover was able to predict whether ice was safe or not by determining how far the rover could drill in a specified time. Four trials at each time interval were conducted. The drill went through an average of 3.95 centimeters of ice when it was powered for 30 seconds, 5.125 centimeters when powered for 45 seconds, and 5.5 centimeters when powered for 60 seconds.

We hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. We also attest that the above properly reflects our own work.

Team Leader's Signature: 

Date: 03/01/24

Team Member 1's Signature: 

Date: 03/01/2024

Team Member 2's Signature: _____

Date: _____

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with your Finalist Verification/Permission Form. A signed copy of this form must be included in your notebook.