



HERITAGE **ib** NEWSLETTER

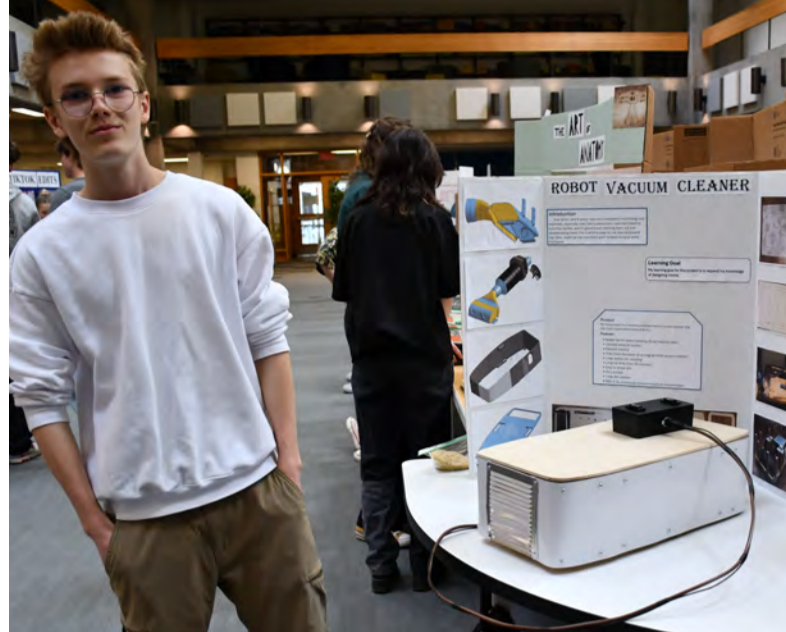


May 2024

Letter from the Coordinators

Along with our other secondary 5 IB students, Evan F. showcased his Personal Project at this year's IB fair. Students spent the better part of the year tackling a learning goal and project of their choosing. In this newsletter, Evan details his process as well as the origin of his project - which goes all the way back to his time in elementary school!

Tessa Barrans & Sebastien Porco



IB FAIR: PERSONAL PROJECT

by Evan F. - IB Secondary 5

As an International Baccalaureate student who has been a member of the program for three years, being able to participate in the IB fair meant a lot to me. I was able to take part in a project that helped me develop new skills, and that allowed all of us students to express our hard work to the public.

When it came to choosing my personal project, I knew right away that I wanted to challenge myself to complete my robot vacuum cleaner project. This meant upgrading my unfinished handheld vacuum cleaner into a working robot. When the IB project was introduced, it was the ideal opportunity for me to tackle this challenge. The first robot vacuum cleaner that I ever built was in Secondary 1. This machine had roots in projects I built in third grade. I took a centrifugal fan I built from cardboard and built the rest of the robot by hand. It worked well for the first while, but it later developed some structural and part issues. I decided to rebuild another robot that was tougher, more powerful, and battery powered.

The process of building my robot vacuum cleaner involved a lot of complex engineering,

woodworking, sheet metal working, 3D printing, computer designing, and programming. First, I created hand sketches of my robot, and combined them with 3D CAD models I made using Onshape®, to get a visual representation of the structure. I decided to 3D print some of the parts and build others from wood or sheet metal. My original idea was to 3D print the entire robot but doing that was more complicated than I thought it would be. The frame wouldn't fit on the 3D printer I was using, and joining smaller pieces would weaken it. I found that I just had to build the robot, by hand, with wood and metal, the old-fashioned way.

As a student, I learned that I like to set almost impossible goals for my building projects. I envisioned the robot to be automatically controlled using an Arduino®, even though it was a near-impossible challenge, considering the time I had. I learned quickly that I had to set much more reasonable goals if I wanted to finish the robot in less than a year.

The IB fair was a success. My classmates and I had the opportunity celebrate our hard work and explore all the presentations others had made. When the people came to visit, they were excited to see the presentations and were engaged in the creations that we had worked hard on to make. The parents were very curious and asked all about what our progress was like and the skills we developed. Overall, the IB Fair was a memorable experience.

