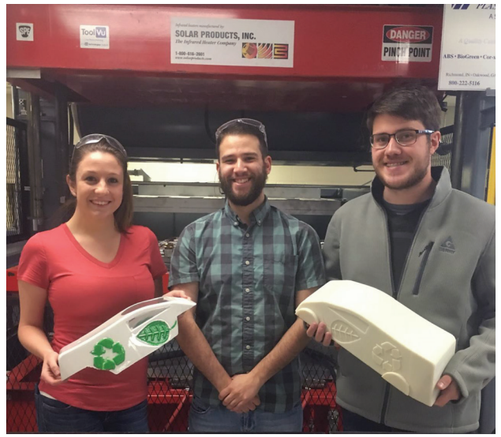
Pennsylvania College of Technology Students Compete in SPE Thermoforming RC Car Competition

[Editor's note: Even though the 2017 Thermoforming Conference in Orlando was cancelled due to Hurricane Irma, several students at Penn College continued their work on their RC Car construction projects. We are glad to present their results here, and we wish them success in the next competition.]



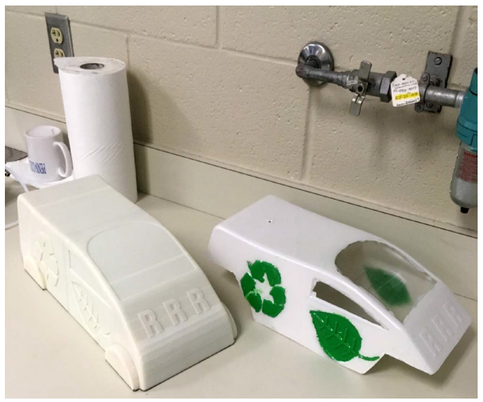
Team members Heather Fennell, Luke Orzechowski and Jack Walsh with their entry for the SPE RC Car Competition.

In the spring semester of 2017, our student group consisting of Jack Walsh, Heather Fennell, and Luke Orzechowski (all seniors in the Plastics and Polymer Engineering Technology program at Pennsylvania College of Technology), was given the opportunity to submit an entry into the SPE Thermoforming RC Car Competition.

We had completed a semester learning about the thermoforming process and theory and have since moved into a new course in part design. We thought this was a good opportunity to learn more about thermoforming and part design. Our group, along with guidance from Christopher Gagliano (PIRC Program & Technical Service Manager) and Dr. Kirk Cantor (professor of Plastics & Polymer program), began working on the project.

There were many different ways of approaching the task of designing an RC car body. First, our group looked at the existing car body that came with the RC car that we received from our sponsor, Wilbert Plastics. We then looked at pictures of famous cars to draw inspiration for what we wanted our car body to look like. In parallel, the original RC car body was being 3D scanned to pinpoint where the mounting holes were located so that we knew where to add them into our design. Dr. Eric Albert, a professor at Pennsylvania College of Technology, and his class assisted with this task.

We used Inventor software to begin designing our own RC car bodies. Ideas bounced around from using a classic car body all the way to a modern sports car. Formability was at the forefront of our minds when designing. It was important to make sure to avoid sharp edges as to not rip the sheet when being formed and that the thermoformed car body could be removed from the mold easily without damage to either the RC body or mold. That was the most difficult for us because we wanted to have a complex part to challenge ourselves by showing detail in the part while avoiding severe undercuts and any issues with the corners.



We decided on a recycling truck body as our final design to keep in theme with plastics as well as to show complex designs in our finished body. We showed complexity by embossing three R's on the back of the RC body (representing the three R's of sustainability: reduce, reuse, recycle) as well as importing a picture of a leaf and the recycling logo on the side. We sketched them and used the "extrude" feature in Inventor to add them to the design.

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