

# Temple University

Use Case – Temple Robotics

## Customer Profile

Temple Robotics is an interdisciplinary student team based at Temple University's Student Space Exploration and Embedded Systems Lab (SSEESL). They compete in collegiate robotics competitions and lead innovative projects that push the boundaries of design and engineering. With a passion for creativity and a commitment to hands-on STEM education, they aim to empower students and tackle real-world challenges through technology.

## Challenge

The team needed to design wheels capable of performing on soft, unstable terrain like regolith, where traction is difficult to maintain. They required a design that could reduce slippage, improve speed, handle tight turns, and withstand impact from rocks—challenges that demanded both durability and adaptability in high-stakes competition environments.

## Solution

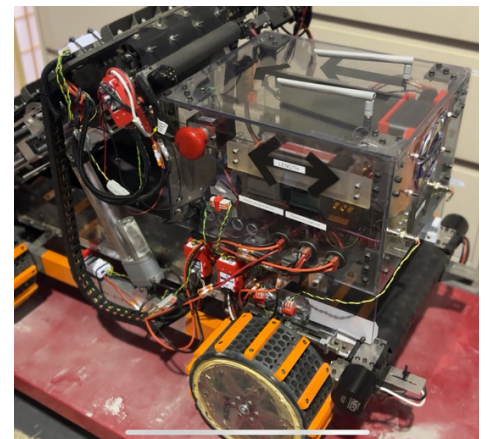
Stratasys provided lightweight, custom-designed wheels made from TPU, a flexible material that absorbs impact and deforms over obstacles without breaking. The wheels featured a fluid tread pattern to improve traction on regolith, holes for attaching cleats to enhance maneuverability, and an overall design that boosted speed and stability during competition.

## Impact

The Stratasys wheels significantly improved Temple Robotics' performance by increasing traction, reducing slippage, and enhancing maneuverability on challenging terrain. The improved speed and stability allowed the team to cover more ground efficiently and allocate more time to task execution. These advantages were critical to their competitive success and final placement.



Wheel assembly made using FDM TPU 92A



Completed robot design used for competition

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