

CHARM: P-25

REUSING STYROFOAM FOR NEW SHOE TREADS

Christie Peng
Heidi Goebel
Annabelle Corbitt
Ruhani Rathee
Madison Sauers



How Might We reduce the amount of **Styrofoam in landfills** by reusing the material to **restore treads for worn-out shoes**?

SOLUTION:

3D printing shoe tread attachments with a **styrofoam-filled center**

PROBLEM:



30%

OF LANDFILLS IS MADE UP OF STYROFOAM

~1 million years

FOR STYROFOAM TO DEGRADE



UNIQUE VALUE PROPOSITION:

Reusing Styrofoam waste by creating shoe tread attachments that will provide a more sustainable and cheaper way to prolong the life of shoes.



FINAL EXPERIMENT:

Using CAD, we created a tread pattern, printed a top and bottom piece in TPU, and sandwiched styrofoam pieces in between using flexible plastic glue.

It takes 6 months (300 - 500 miles) for runners to replace their shoes

FUTURE PLAN:

We will experiment with different materials, test the durability of our product using the abrasion tester, and expand our tread design CADs.



EVERY SHOE TREAD MADE = 2 STYROFOAM CUPS RECYCLED.