

TECHNICAL DESIGN PRELIMINARY ROUND ON-SITE PROBLEM



MIDDLE SCHOOL

DESIGN BRIEF

Have you ever had an injury that required you to use crutches for a few days, or maybe even longer? Even if you have not used crutches yourself, you have probably seen or known someone who has used them.

Living a normal life with an injury is important because life does not stop when you get hurt. Imagine that you need to use crutches during the school year. You would need to figure out a way to get around on your crutches all day – to and from school and from class to class – using both arms and hands to manipulate the crutches while also carrying anything you need for the day.

What might your needs for your school day be? Perhaps school supplies, keys, cell phone and your lunch!

Another consideration is that many schools do not permit backpacks in classrooms. How would you carry these supplies if your hands are not free, and a backpack may not be used? It means that you need a device to assist you when carrying to class the things you need each day.

DESIGN CHALLENGE

Design a device or product that can be attached to an individual crutch or pair of crutches to enable a person on crutches to carry books, a laptop, and small objects. The school does not permit backpacks in classrooms.

DESIGN REQUIREMENTS AND LIMITATIONS

- Your device must be safe to use.
- Weigh less than two (2) pounds.
- Be able to carry a minimum of four (4) pounds.
- Be able to carry books, a laptop, and small objects.
- Attach to an individual or pair of crutches.

Note: The solution does not require the team to make an actual prototype or model. The solution is only the contents of the portfolio.