

# ENGINEERING DESIGN CHALLENGE

Work as a team to design and prototype a solution that will help a person with a disability to execute daily tasks with ease. You will have 90 minutes.

Your team must design and sketch your prototypes, or [you can use tinkercad if you feel comfortable.](#)

We recommend you use a google jamboard, with one group member sharing their screen to help facilitate this challenge. [You can find a tutorial on this here.](#)

At the end of the challenge your team will have 2 minutes to present the prototypes to a judge. Press Request Help in your Zoom breakout room when you are finished to be assigned a judge.

As a team, pick a case study from the list below.

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## CASE STUDY #1

Arjun is a 51 year old male with Parkinsons. He has trouble with walking, and has persistent shaking, localized to his left arm. This makes life a little more difficult as growing up Arjun was left handed. The constant shaking and muscle flexing also leads to Arjun being persistently fatigued, which puts additional strain on his partner, having to care for their teenage children.

**Design up to 3 devices that will help Arjun execute daily tasks with ease.**

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## CASE STUDY #2

Leona is an 80 year old woman with Alzheimers. Because of financial strains her family can not afford to send her to long-term care, and she must live with her 58 year old son Ben and his 60 year old spouse.

Leona's favourite thing to do is go for walks, however she forgets that she needs to walk with someone, and will leave by herself and get lost blocks away from her son's house.

**Design up to 3 devices that will help Leona execute daily tasks with ease.**

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## CASE STUDY #3

Nisha is a 16 year old with Epilepsy. She suffers from Generalized tonic-clonic seizure (GTC), commonly known as Grand Mal seizures. This causes her to flex her muscles and then tremor, causing her to fall from her current position. Nisha's biggest fear is having an episode while somewhere dangerous, such as on the stairs or in a science laboratory.

**Design up to 3 devices that will help Nisha execute daily tasks with ease.**

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## CASE STUDY #4

Dakota is a 43 year old who has just been diagnosed with Amyotrophic Lateral Sclerosis (Lou Gherig's Disease). They're experiencing early symptoms of weakness in their hands and feet and difficulty swallowing. They know that there are more symptoms on the way, and want to start prepping for them. Dakota lives alone, and wants to live independently for as long as they can before hiring an in-house aide.

**Design up to 3 devices that will help Dakota execute daily tasks with ease.**