

Final Project: Seat Belt Extender

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EDSE 528



Users



- Originally designed for a person with Cerebral Palsy (spastic diplegia) unable to turn a hand over completely, experiencing tension in the shoulder and upper arm, and thus, having difficulty reaching behind to grasp the seat belt.
- Users with other physical disabilities, poor gross motor skills, traumatic brain injury, and/or one-handed users, etc.
- Older population having difficulty to twist/turn

Purpose



- Provide an adaptive mean for reaching for the seat belt (especially in the two-door cars where it is located further away from the seat).
- Allow the user to reach and fasten the seat belt without opening the car door.
- Devices considered and trialed:
 - Magnets
 - Reachers (various hooks)
 - Clamps on the seat belt

Customization



- The length and width of the extender can be adjusted to meet user's abilities and needs.
- Can adjust the way of attachment, so it is easier to put and remove the extender on/from the seat belt
- Can change the handle to support users with grasping difficulties
- Can change the color and texture of the handle

Designing

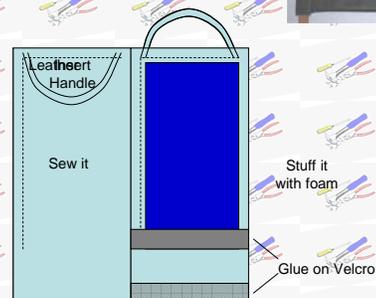


Materials:

- Leather or any other lining material (30 x 10 in.)
- Scissors
- Sew machine
- Foam
- Velcro (industrial strength)
- Super glue
- ... and most importantly ... **RULER**



Development





Implementation

- Determine the ultimate position of the extender on the seat belt.
- Model attaching the extender to the seat belt.
- Allow the user to practice attaching and removing the extender, reaching for and fastening the seat belt.
- Adjust the extender and its position based on the user's needs and specific car environment.
- It is recommended to take the extender off the seat belt while driving in order to prevent belt malfunctions.