

Team 25 - Assistive Mobility Device For Peds.

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NEED:

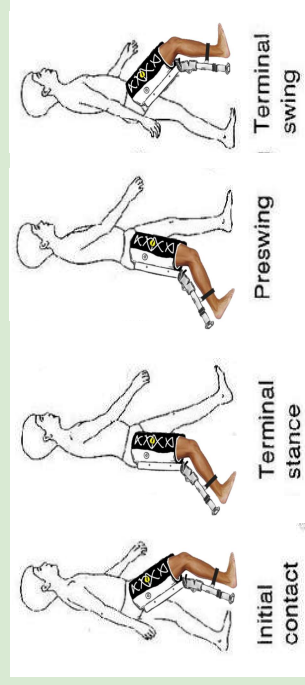
Children ages 5-7 cannot use crutches since they lack full motor cortex function therefore they need something to allow them to move around independently without loading their lower limbs

DESIGN INPUTS:

- Cost > 200\$
- Weight of device > 2kg

Requirements- Must withstand force of child, we estimate a maximum force of 500 N, the device must also be securely and stably attached to the thigh and not allow for slippage or movement around the thigh.

SOLUTION - DESIGN



FUTURE

Aluminum connecting joints to reduce weight and cost, Guided lacing for boa fit for better compression, better adhesive to attach boa sleeve to device frame

TESTING RESULTS



VT1) Vertical Load Test
No Deformation when F = 500N
Pass

VT2) Longitudinal Slip Test
 $\Delta < 15\text{mm}$ when F = 483N
FAIL

VT3) Rotational Slip Test
 $\Delta < 10$ deg. when T = XYZ N-m
pass

SOLUTION - BUILD



Generation	Cost	Weight	Compression Method	Adjustable Angle	Calf Support
1	\$378	8 lbs	2 Straps above support	X	X
2	\$170	3.8 lbs	BOAFIT Compression	✓	✓