



Biomedical Leg Brace for Impoverished Polio Patients

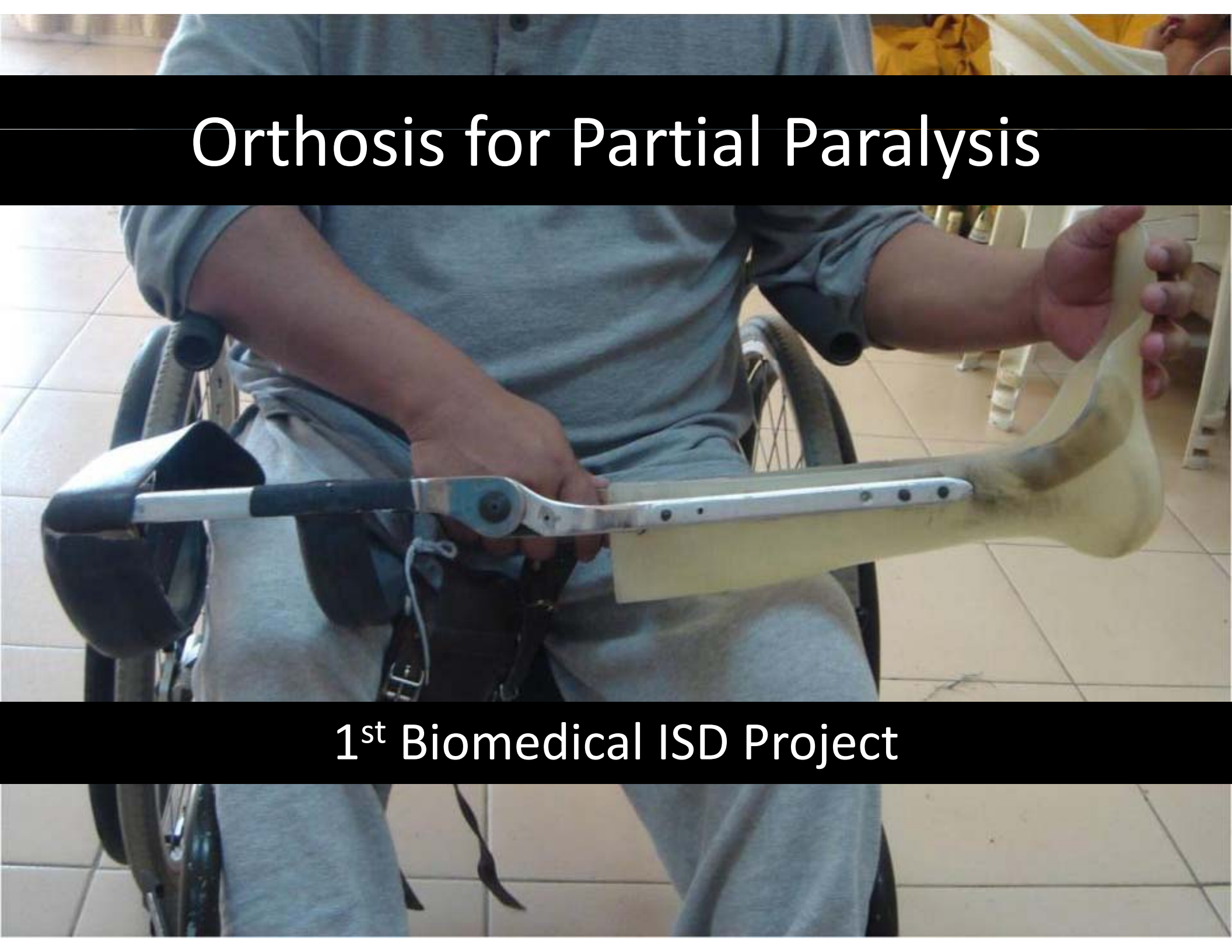




Pathway Engineering

Orthosis for Partial Paralysis

1st Biomedical ISD Project



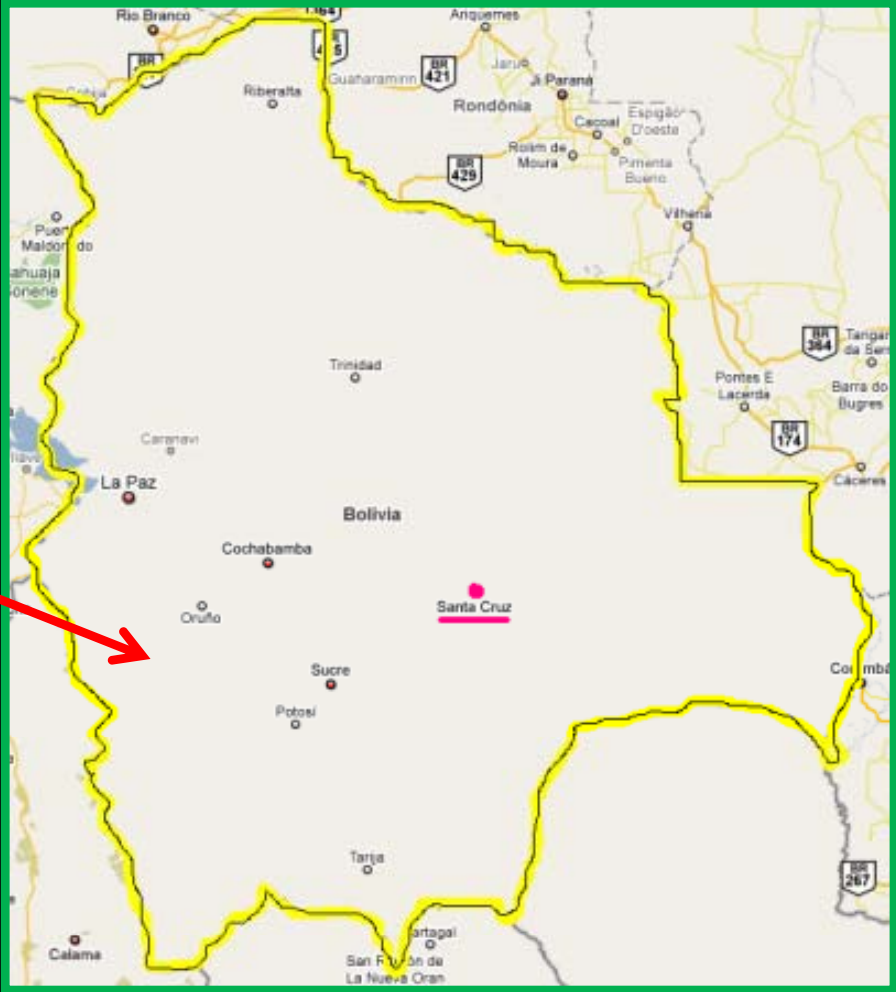
Walter Henry Methodist School



Outline

- I. Background
- II. Methods and procedures
- III. Design options
- IV. Final Recommendations
- V. Cost
- VI. Conclusion

South America, Bolivia, Santa Cruz





MCC





La Casa del Impedido (ACI)





Residents of ACI







Existing Conditions





***This is not even during the rainy season**





Our Project

Project Selection



Decision Matrix

Project	Number Affected (10%)	Feasibility of Production (20%)	Practicality (25%)	Cost of Production (15%)	Innovation (10%)	Sustainability (20%)	TOTAL Ranking
Prosthesis							
Orthosis							
Crutches							
Walker							
Tripod							

Interviews



Poliomyelitis



Roberto Carlos



Outline and Dimensions



Casting Legs



Reinforcing Casts



Design Considerations

- Orthosis
 - Time needed to put on / take of
 - Weight of Orthosis
 - Multiple Knee-Joint locking positions
- Methods and Materials
 - Available in Bolivia
 - Understand resources

Resources in Bolivia

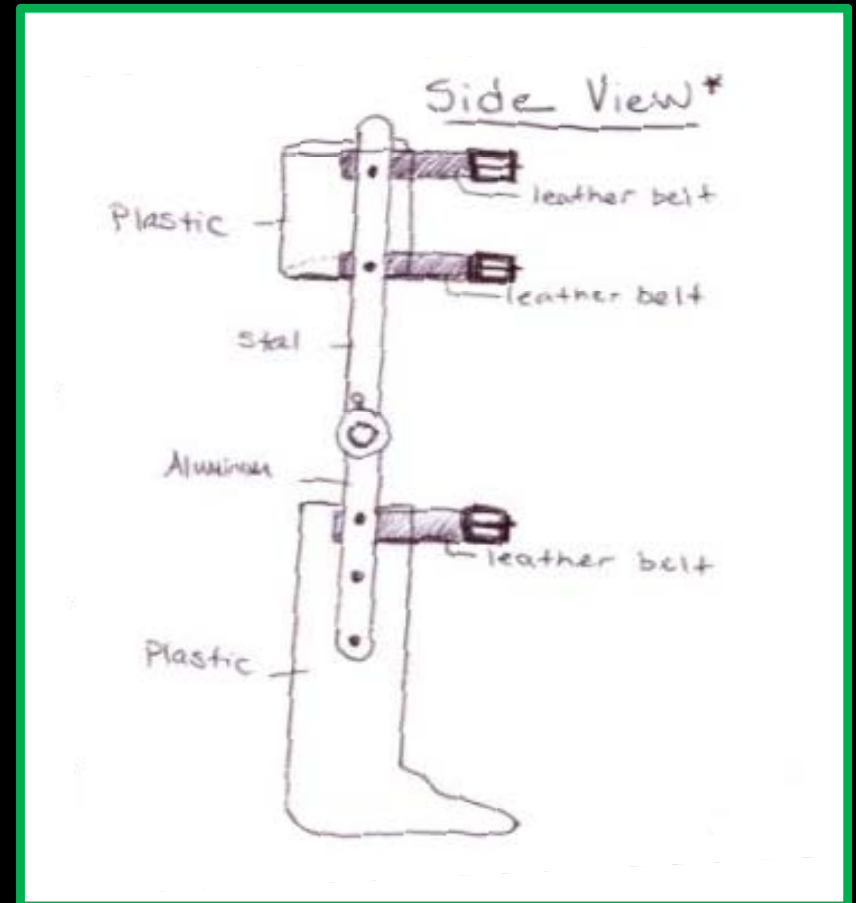




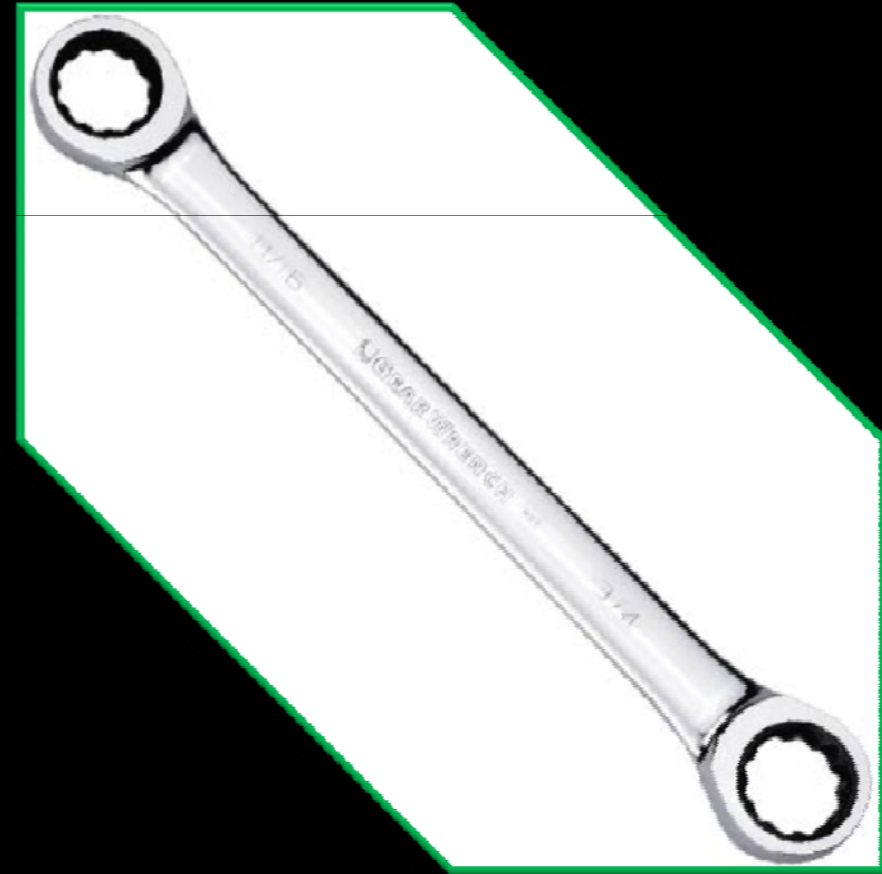
Resources at ACI

Design Options

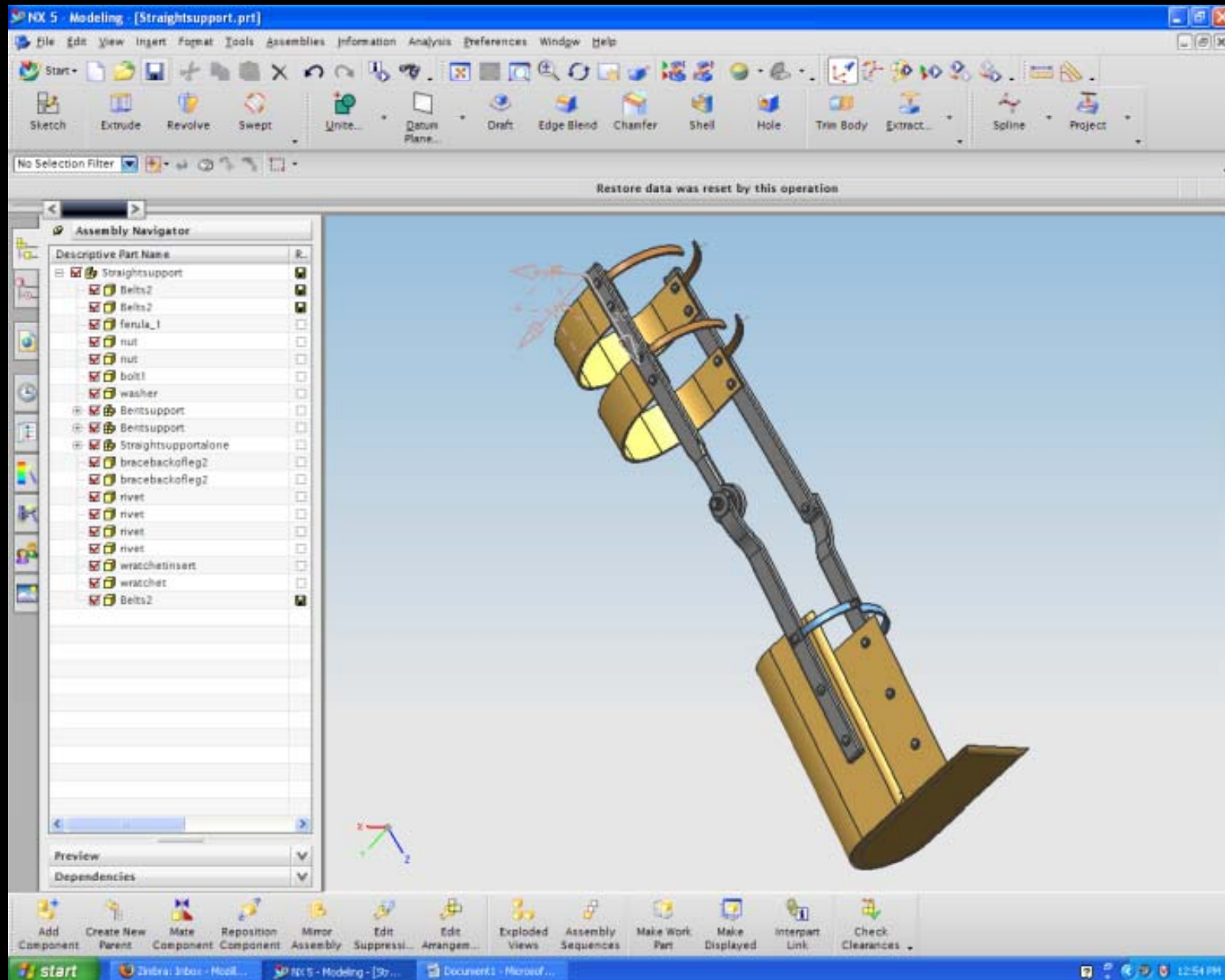
- Material Selection
 - Titanium
 - Steel
 - Aluminum
 - Leather vs. Velcro
- Knee Joint
 - Area of Innovation



Knee Joint



Structural Analysis



Cost Estimate

Producer	US (\$)
US	1900
Bolivia	300
Pathway	60

Pathway	US (\$)
Box Ratchet	15
Steel	2
Aluminum	9
Leather Belts	8
Rivets	6
Copolymer	10
Plaster	10
Total	60

Prototype Construction



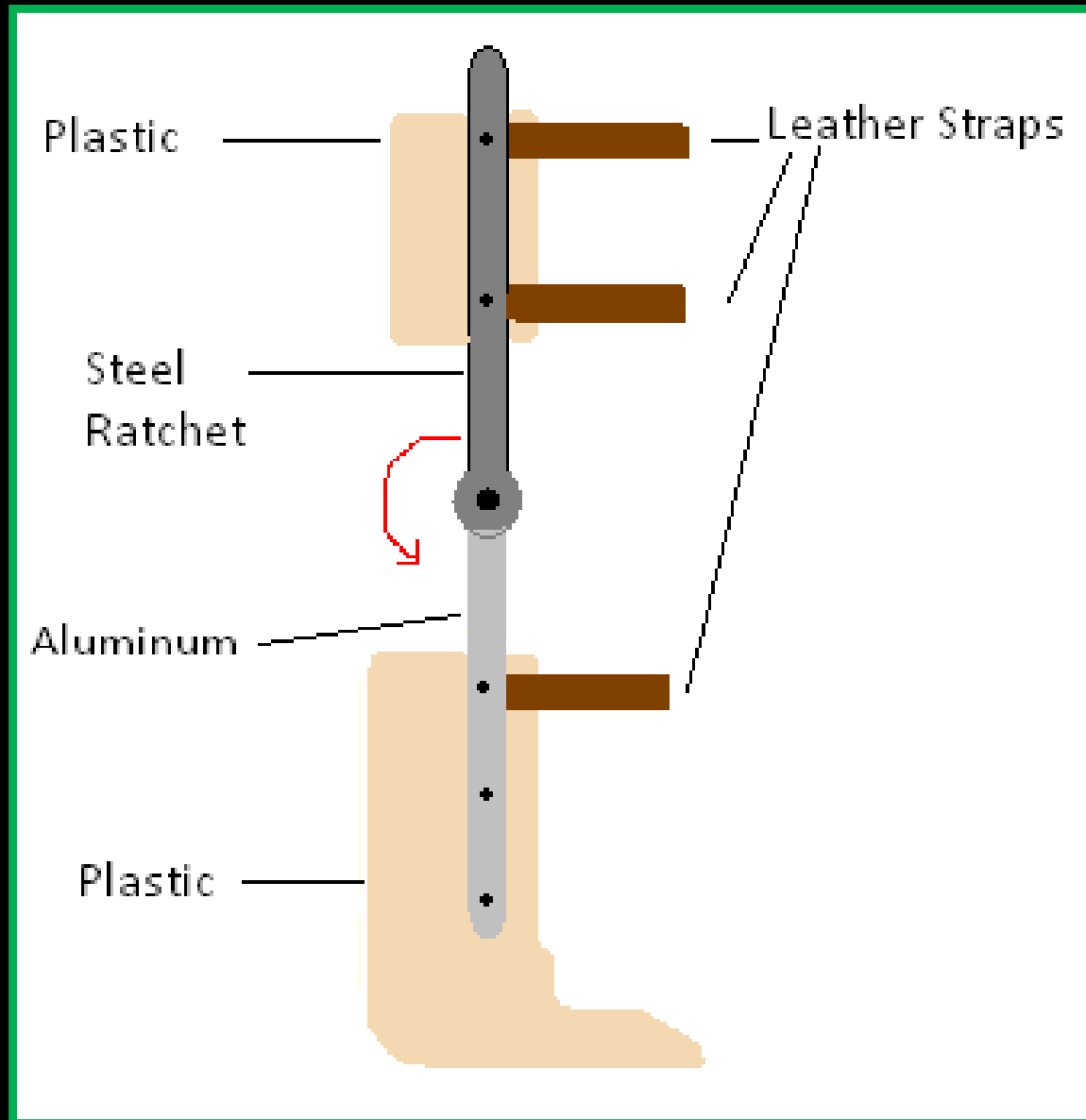
Perseverance



Success



Final Recommendation





FUTURE



Final prototype to Bolivia



Conclusion











MI COLEGIO



Gracias gracias
Amigos por ayudar
sus cosas por

Estoy muy
contento por
pertenecer a este
colegio que lleva
el nombre de
una persona muy
importante Don
Luisitor Honory
y que ellos lo
ayuda para
siempre

Escuela



























Questions?