

AlonTree Neurological Recovery Devices

AlonTree

Project funded by



In collaboration with:
WCU Corp. for Entrepreneurship and Innovation



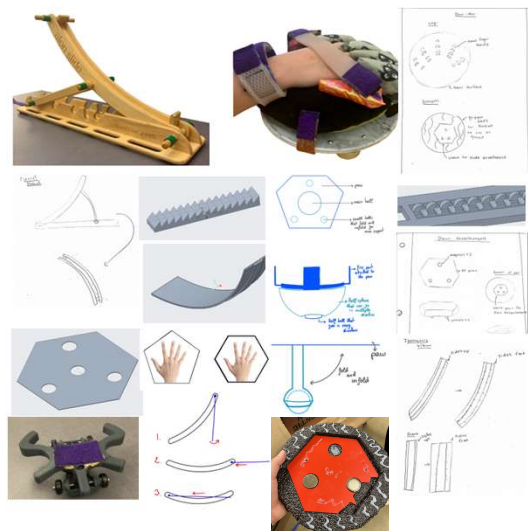
PROBLEM STATEMENT

- Stroke survivors tend to have loss of function in one or more limbs, resulting in needing physical therapy
- I can be hard to continue that therapy away from the doctor's office, resulting in limited access of treatment
- AlonTree is striving to create at home physical therapy devices for the regeneration of limb strength and motion

REQUIREMENTS

- **Multiuse** – Paw must be useable with different "modes", Slide but be useable in conjunction with the paw at multiple height settings
- **Lightweight/Portable** – Slide and Paw must be easy to carry with one hand and easy to install, and move from place to place
- **User-Friendly** – Easy to understand and use
- **Manufacturable** – Material is easy to obtain and use
- **Ergonomic** – Paw must be comfortable, practical, and effective use with the patient's hand

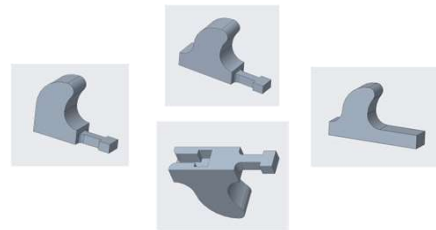
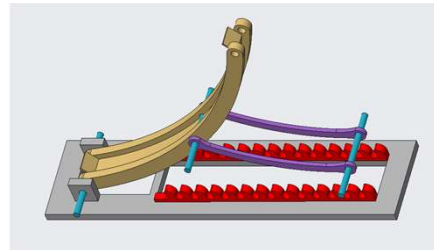
CONCEPTS



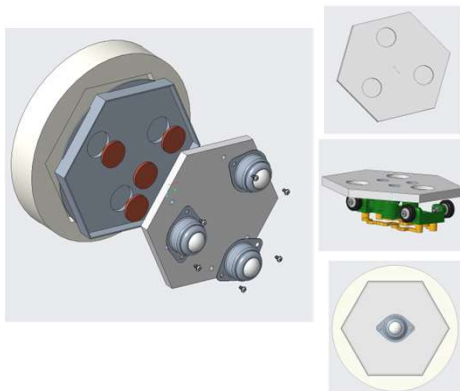
FINAL DESIGN, APPROACH, PLAN

AlonSlide – The final design for the slide includes a more robust build with aluminum supports, and a combination of PLA 3D printed setting teeth and acetal base.

(The current design for the slide includes the wood prototype slide as the design was not changing, and materials were outside of budget to remake it).



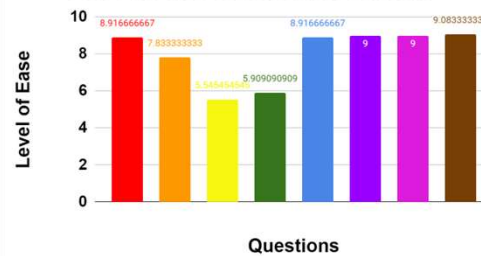
AlonPaw – The final design for the paw includes four 3D printed interchangeable parts for different functions and goals, and is a dome shaped foam hand pad with adjustable wedges for comfortable hand placement and use



RESULTS



Ease of Use of AlonTree Devices



- Level of ease to understand how to use the AlonSlide
- Level of ease to move the AlonSlide up between settings
- Level of ease to move the AlonSlide down between settings
- Level of ease to carry the AlonSlide with one hand
- Level of ease to use the AlonPaw in conjunction with the AlonSlide
- Level of ease to change the Velcro pieces to fit one hand on the AlonPaw
- Level of ease to understand how to use the AlonPaw
- Level of ease to change between attachments of the AlonPaw

SUMMARY AND CONCLUSIONS

AlonSlide

- Features a more robust and durable build
- Offers more height settings for more gradual changes for the patient
- Works with special AlonPaw setting for more versatility

AlonPaw

- Features multiple settings to work different skills and movements including but not limited to: crawling, general movements, hand balance, and AlonSlide work
- Comfortable in the hand and supportive
- Adjustable for different hand sizes and shapes

FUTURE WORK

The team would like to expand the AlonSlide in the future to be Bluetooth and have lights, as well as re-work the weight of the slide and how easy it is to adjust back to its storage setting.

TEAM & ACKNOWLEDGEMENTS

Team 12

- Allison Barrick- ME
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Mentor

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Sponsor

- Alon Kaplan

