Christopher Bearne Liam Clark Matthew Gencher Daniel Leung Brian Windhaus

EDGERUNNER

Motivation

- A profile is the blade shape
  - Set to large circle radii
  - A profile can have multiple radii
- Profiles are vital for: [1]
  - Performance
  - Speed
  - Preventing injury
- Current measuring tools are bad [2]
  - Prone to human error
- Need for a new reliable measuring tool

Problem Statement

Enable verification of skate profile accuracy

Design Alternatives

Clamping mechanism	Screw	Toggle	Magnetic
Sensor	ToF	LiDAR	Camera
Movement action	Ball screw	Belt Drive	Immobile

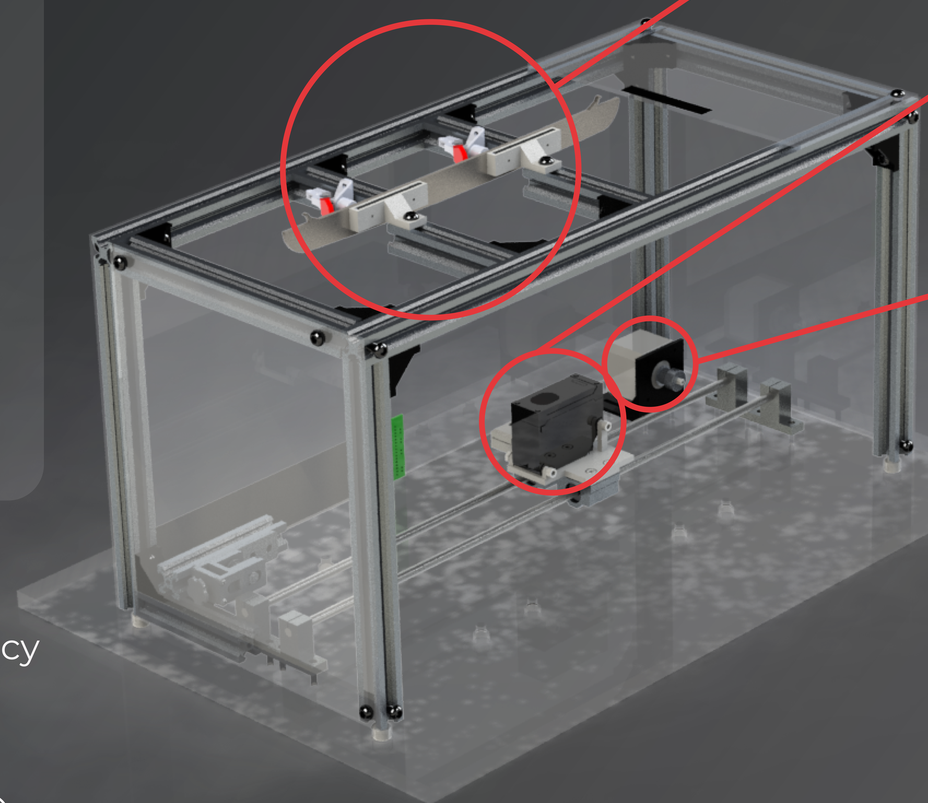
References

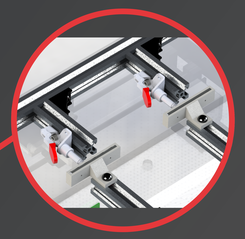
[1] Bauer Hockey, Ltd, "Ice skate profiling guide: Bauer," Bauer Hockey, Ltd, 2022. [Online]. Available: https://ca.bauer.com/blogs/learn/complete-skate-profiling-guide. [Accessed 19 March 2023].

[2] T. Di Nardo, C. Needham, M. Gomm and C. Lauridsen, "Ice skate blade measuring apparatus". U.S. Patent 10 533 834 , 14 January 2020.

Objective

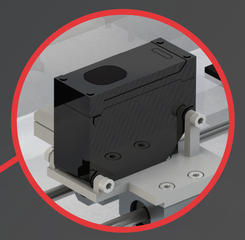
A device to measure and quantify a skate's profile





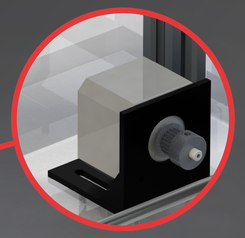
Magnetic slots & toggle clamps

- Easy skate blade placement



Laser sensor

- <1 mm accuracy



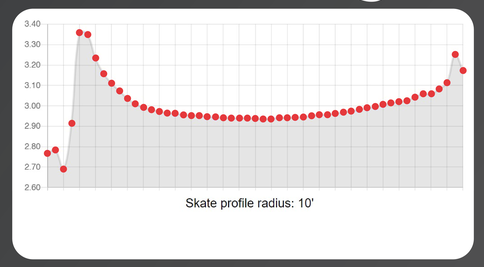
Stepper motor

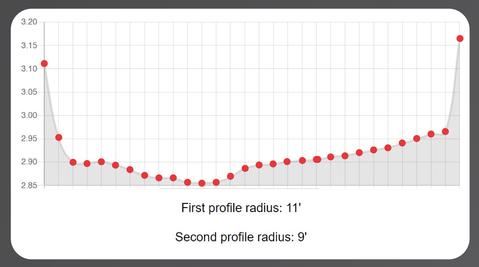
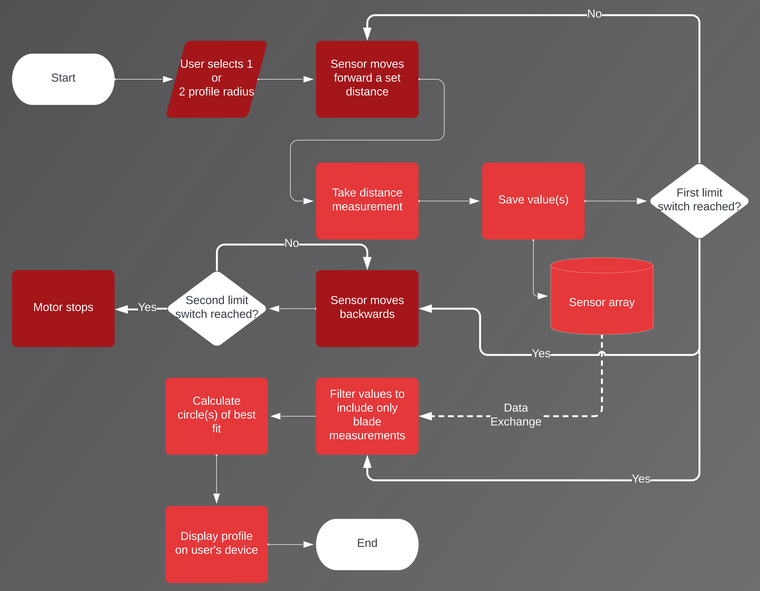
- Fast and controllable

Advantages

- Quantified measurement
- Highly accurate
- Quick run time
- Sleek transparent design
- Wireless readings
- Reliable parts

Testing & Verification

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