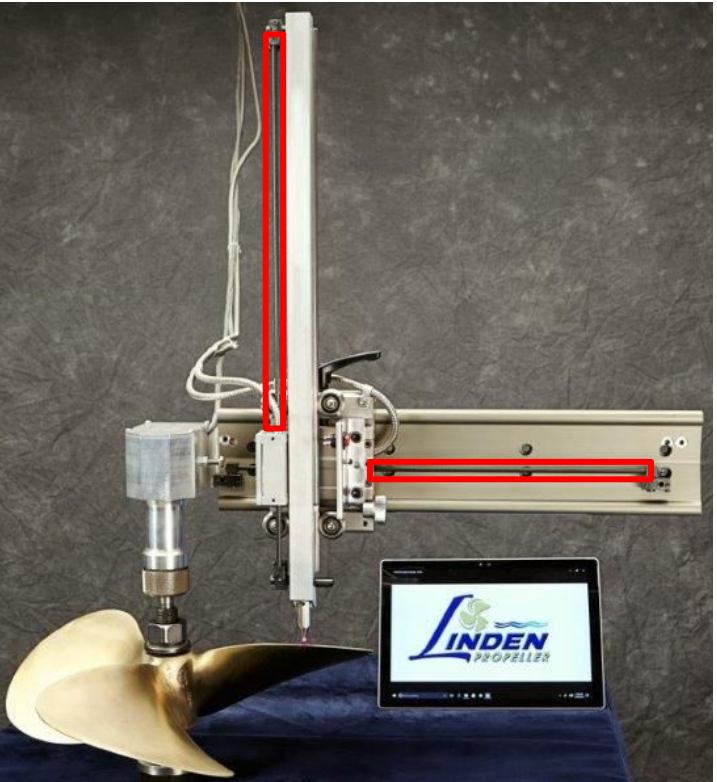
Problem and Users

Elias Colsch, Denny Dang, Spencer Rudin, Alan Whitehead
(and Mani Mina)

Group: sdmay25-34

Project Overview



Project Name: Laser Scan Readings for Propeller Measurement

Goal: Replacing propeller measurement system of Linden Propeller

Reason for change:

- Carbon fiber rods attached to scales are brittle
- Expensive to replace/repair
- Extended lead times

Problem Statement

The current system used by Linden Propeller is highly susceptible to damage, forcing the business to stop work in order to repair or replace the carbon fiber rods attached to the scales.

- Estimated cost per rod: $850
- Estimated cost per year: $5000 (this includes shipping and production lost)

List and Descriptions of Users

- Machine Shop Worker - Someone that works in the Linden Propeller machine shop. He is tired of breaking the equipment and having to wait for it to be repaired. They are also tired of the incessant warnings to not touch the rods.

- Small Business Owner - Someone that is in charge of running a business on smaller funds. He is concerned about the amount of money he has to spend on repairing and replacing devices.

- High accuracy measurement engineer - Someone who specializes in designing, implementing, and improving systems that measure physical properties with high precision. He is concerned with the accuracy of his devices and worries that a new device will not have good enough accuracy.

User Needs

Machine Shop Worker	Small Business Owner	High Accuracy Measurement Engineer
A solution that is: ● Durable ● Precise and accurate ● Easy to use ● Compatible with current setup	A solution that is: ● Modern (attractive to consumers) ● Durable ● Precise and accurate ● Cost effective	A solution that is: ● Precise and accurate ● Easy to use

Conclusions

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Prospective Solutions:

1. KEYENCE LK-G5000 Series
2. Magnescale BS78
3. Data fusion of less accurate sensor data (IR/Ultrasound)

Laser technology as a whole is much more expensive than a small business is willing to invest, even if the solution is cost effective

Laser technology on the market does not meet our criteria

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