

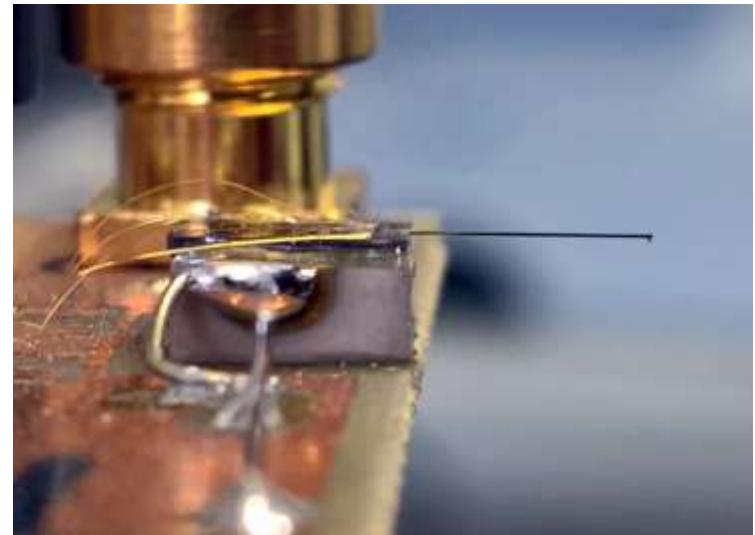
RollResearch International Ltd.

is a provider of high-tech roll measuring and control systems and roll grinder modernizations for paper and steel industry.



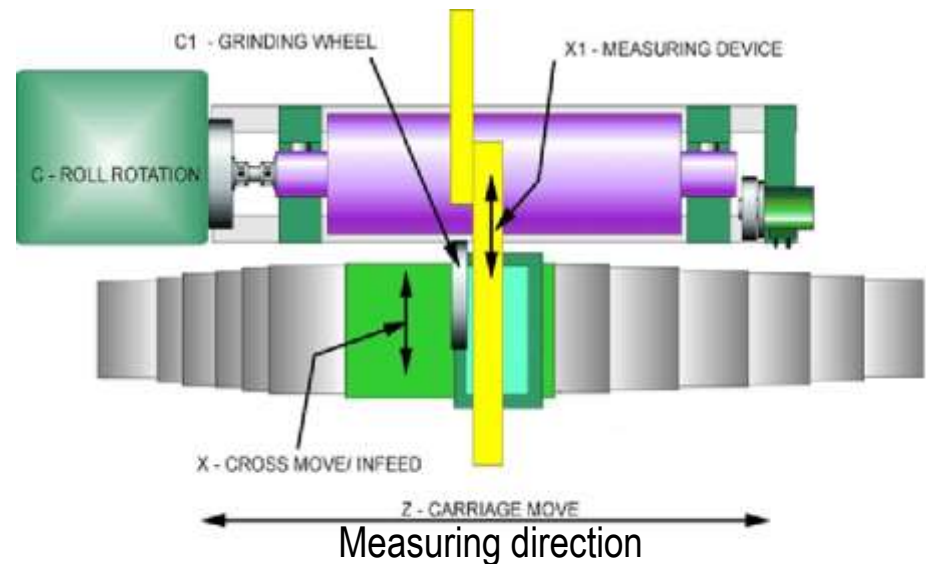
Our goals and tasks

- Integrate the microprobe into a roll grinding machine
 - Design mechatronics to drive the microprobe into contact with a roll
- Measure surface roughness of a roll according to standards
- Find lead marks in a roll
 - Lead marks appear when roll rotation and feed is incorrectly synchronized
- Desired measuring lengths:
 - 50 – 200 mm



Plans

- Movement in the measuring direction is created by Z-axis of a grinding machine
- Contact with X-axis movement

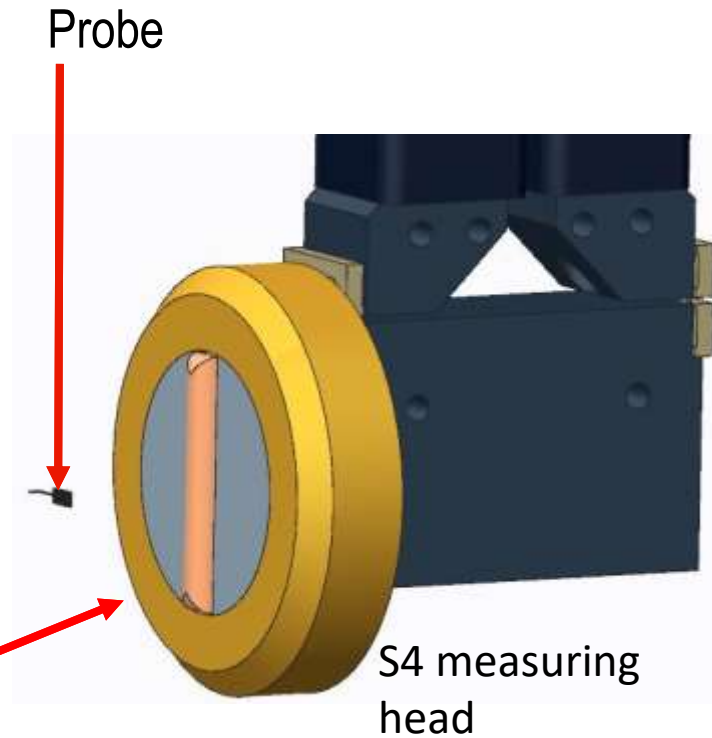


Roll measuring device



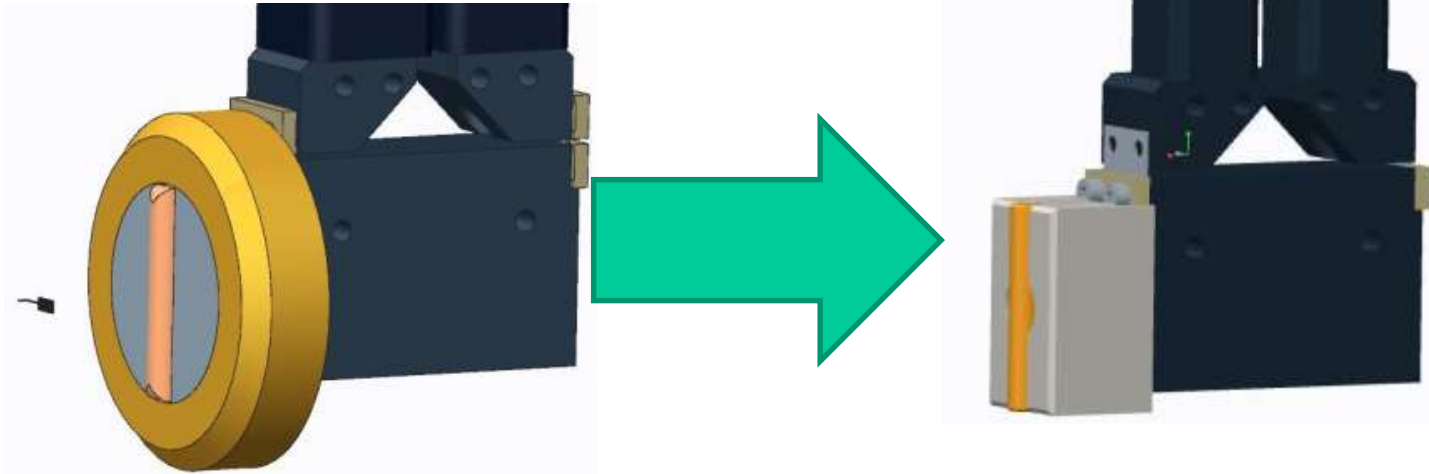
Plans

- New design for S4 measuring head
- Design mechanism to move the probe into measuring position



Design for the measurement device

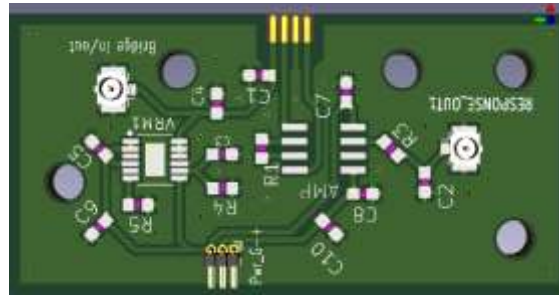
- New design for S4



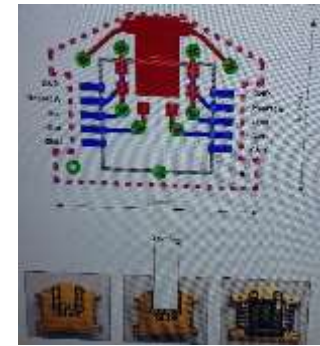
Design for the measurement device

- Mechanism to move the micro-probe
 - Will be attached to the side of the S4 measuring head
 - Pneumatic cylinder to push the probe into the measuring position
 - Integrated wipers to clean the surface of a roll
 - Integrated system to clean the measuring tip

Design



VTT design for testing

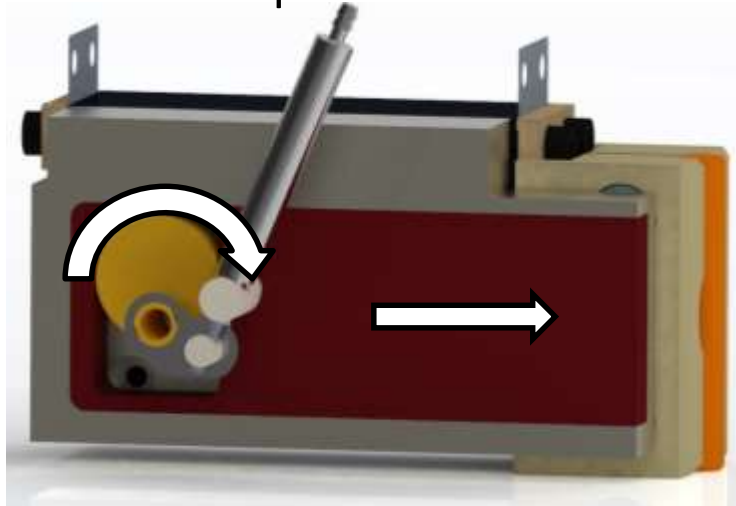


GETec design

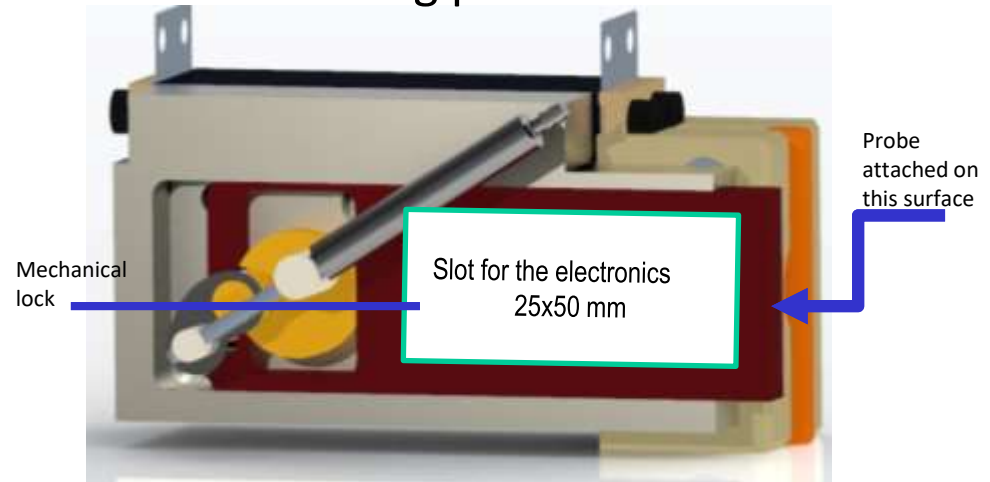
Draft of the design and measuring porcess:

1. Eccentric crank pushes the probe into measuring position
2. While Z-axis is moving X-axis takes contact (or vice versa, must be tested)

Idle position

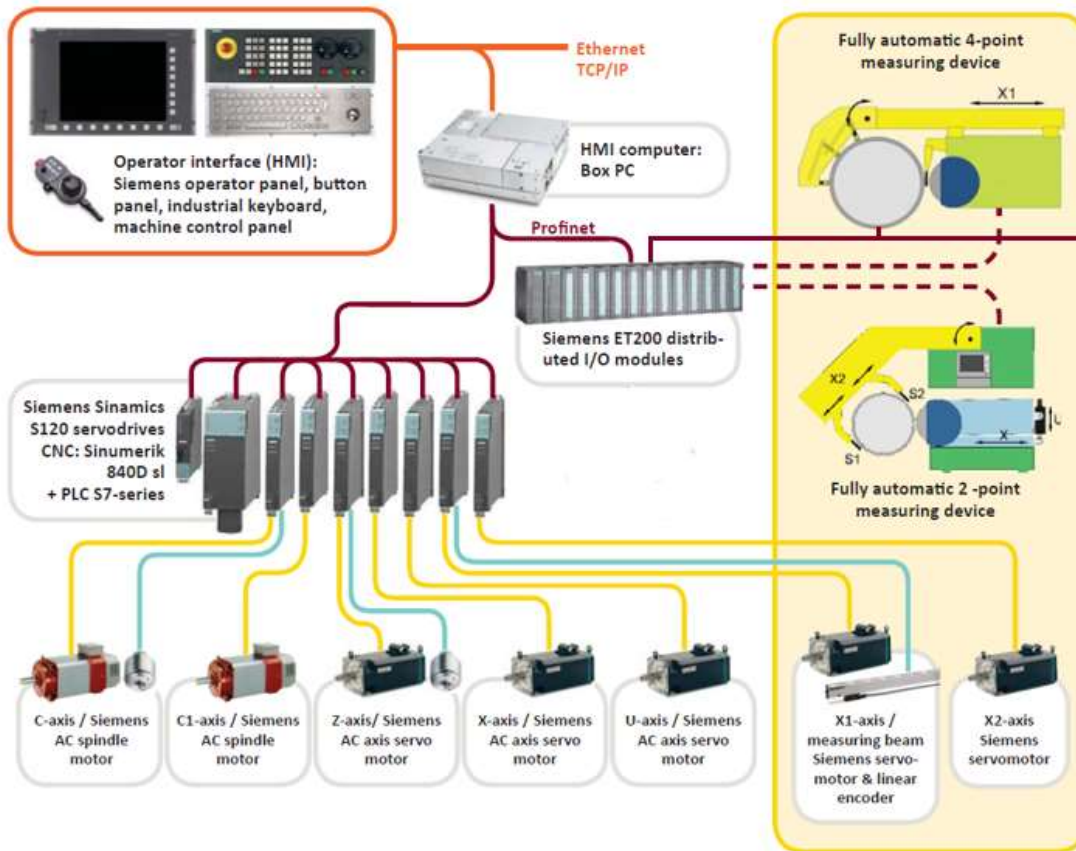


Measuring position



Design for the measurement device

Control system



ELECTRONICS

Challenges

- Manufacturing of the parts
 - Machining (simple shapes), casting (price?), 3D printing (durability?)
- Measuring environment: dirt, vibrations etc.
 - How to clean the tip before and after the measuring without braking it
- Fragile cantilever
- Operator based failures
 - Collisions
- Rolls with cracks and damaged coatings

To do...

1. Once more detailed information is acquired of the probe holders, the final detailed design is made
2. Manufacturing of PCB design of VTT
3. Testing the Z-movement of a grinding machine
4. Manufacturing of the prototype
5. Testing in our assembly facilities and in VTT
6. Testing in industrial environment

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In search of
the perfect roll



Thank you for your attention!