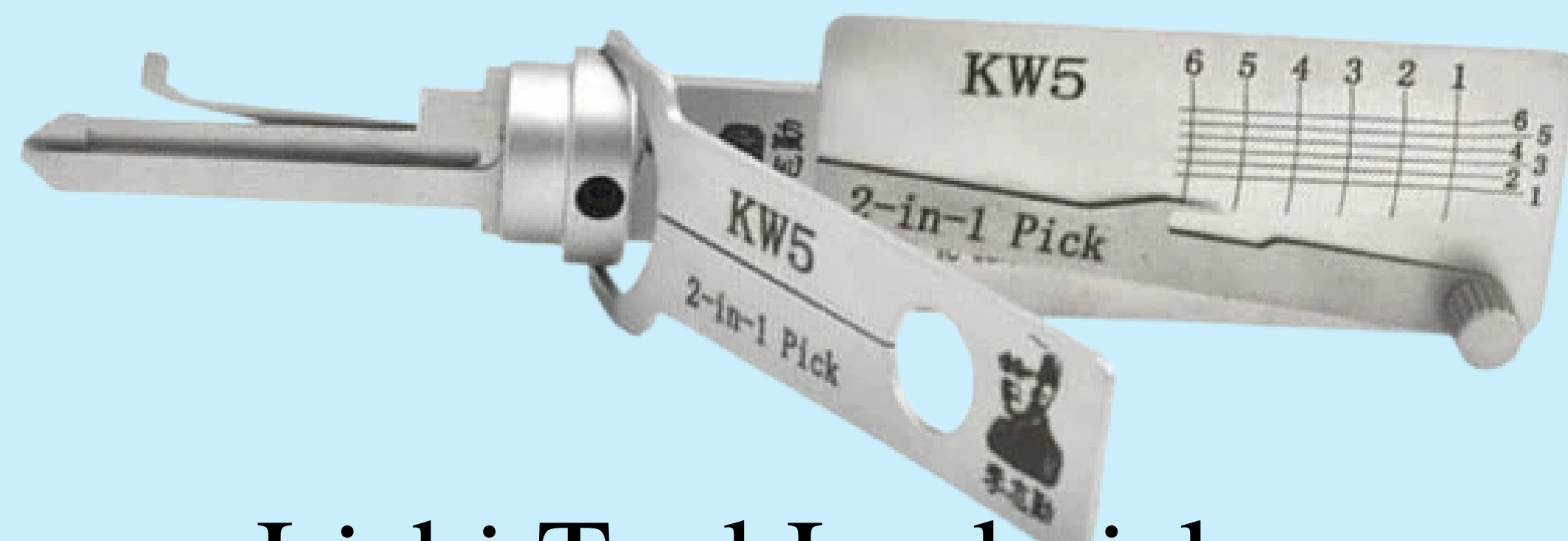


Brendan Valleau, Kendal Zverloff, Brooke Sposit  
Advised by Dr. Gokarna Sharma

## Lishi Tools' Impact on our Study

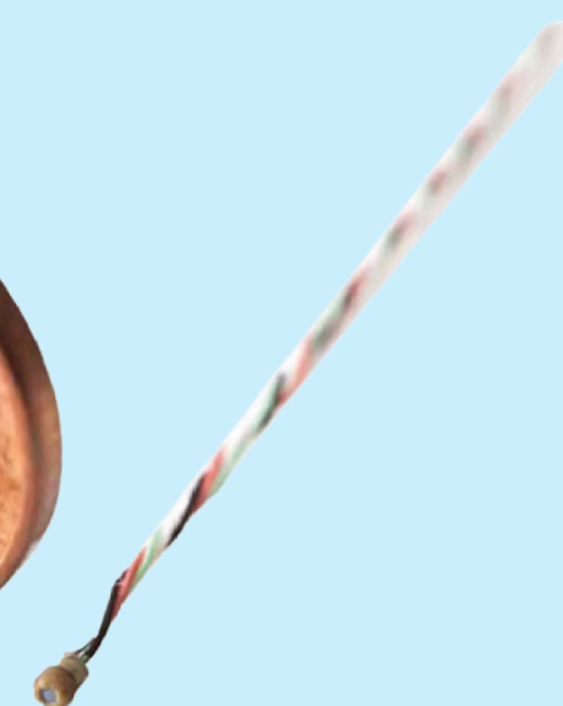
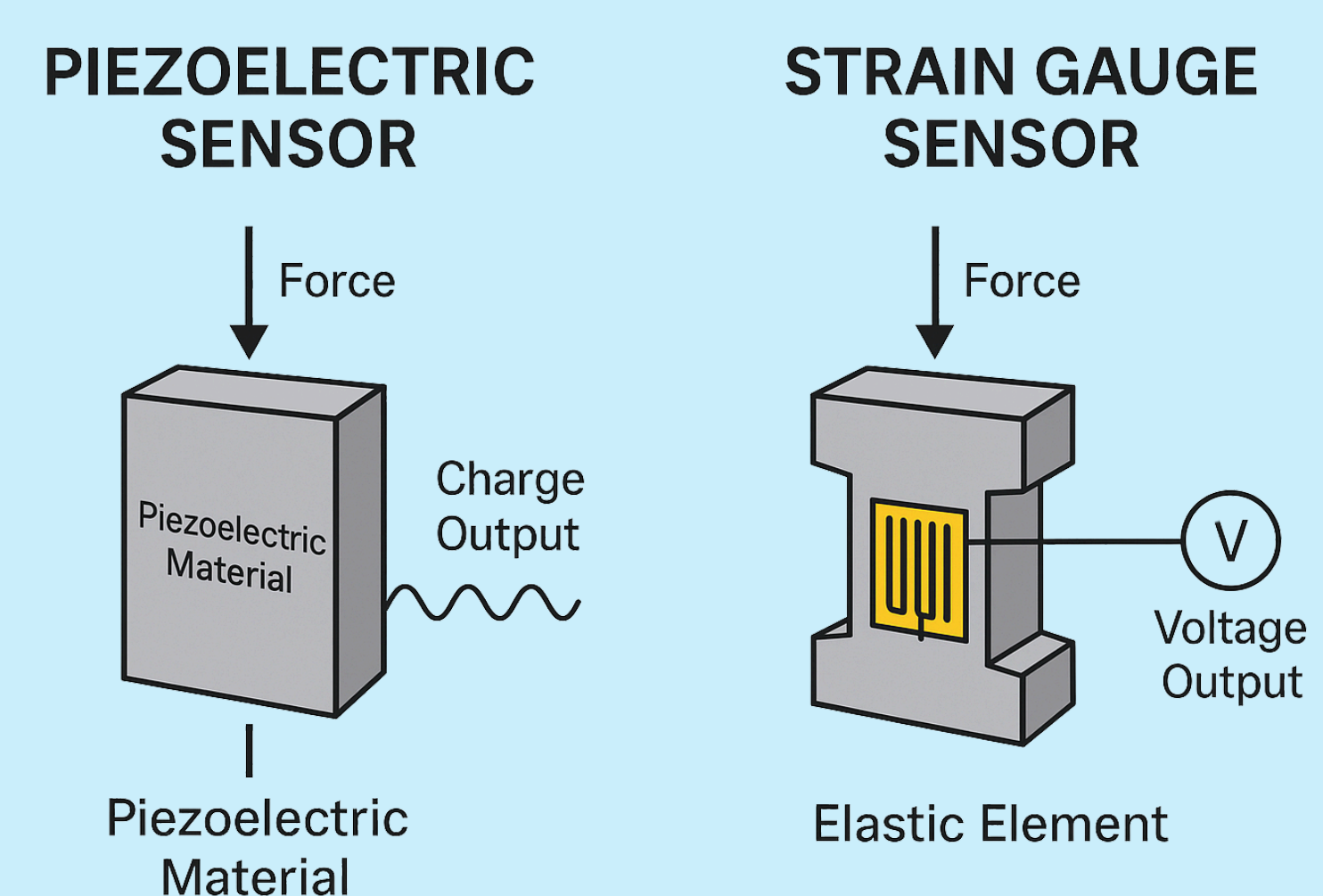
- Lishi is a two in one lockpick tool
- Used this to create a tool to further locksmithing industry
- Lishi added size constraints to sensor
- Also added base to attach sensor to



Lishi Tool Lockpick

## Inspiration: Pressure Sensors

- Inspired by current sensors being sold
- Looked for useful features
- Also looked for drawbacks to avoid



Sensorade Pressure Sensor

## Abstract

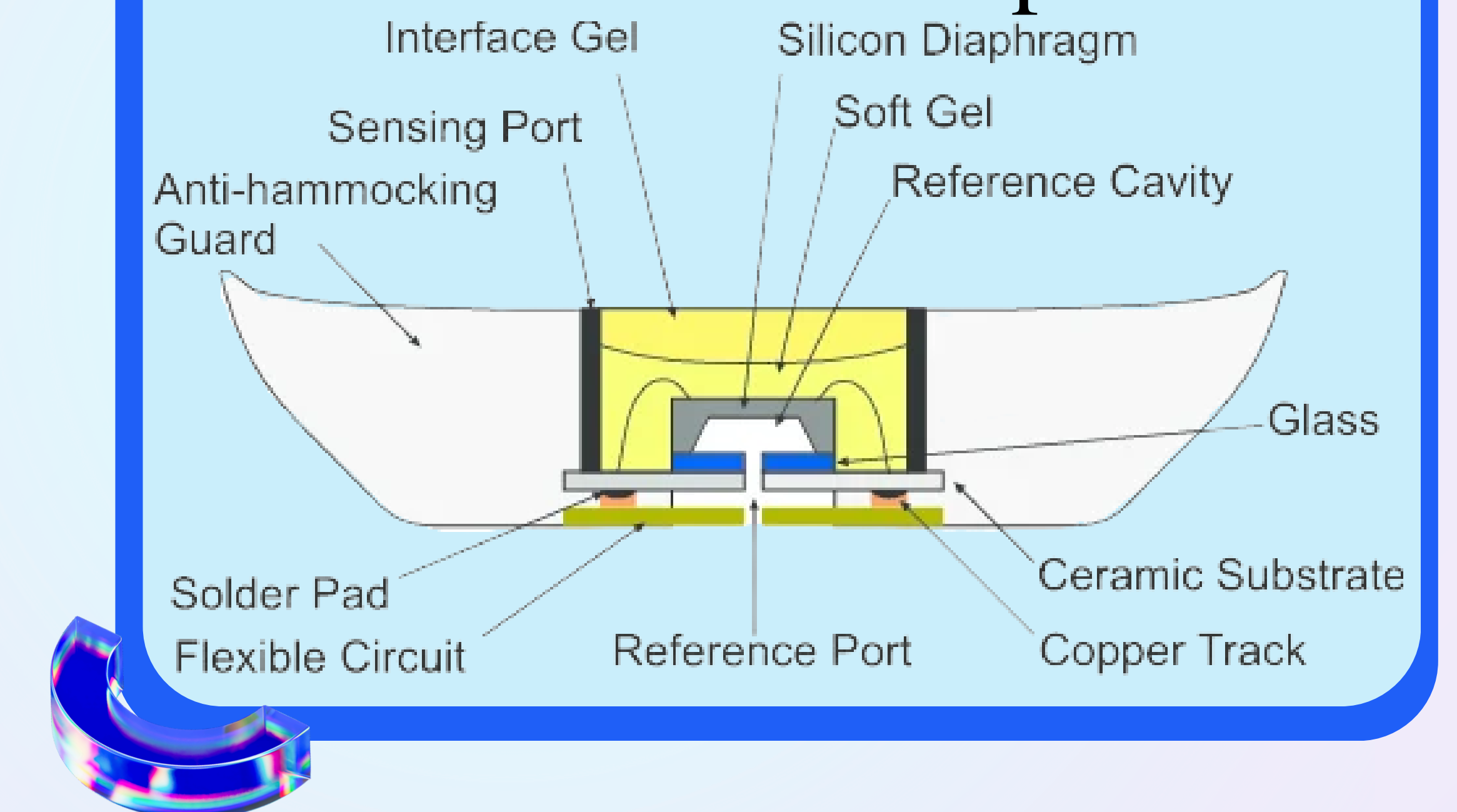
We researched different kinds of microsensors as well as their current applications and tradeoffs. Our research led us to several different sensors that could be utilized for our intent, but none that did everything we would want it to. Thus, we began to design our own conceptual microsensor, specifically tailored for our needs and inspired by our research. Our first priority was size, so we ensured that the sensor could fit inside an average pin lock. We confirmed that the sensitivity of our theoretical sensor would properly capture the pressure it was exposed to. We developed a rough outline of what our sensor and its connected relay device would look like and how the sensor would report information back to the user.

Sensors of all kinds have a wide range of use in everyday life and further specialized research. The development of smaller and smaller microsensors only opens up more possibilities and places technology can evolve into. Our microsensor could not only be used in our applications, but it could be used worldwide and in a wide range of different utilizations (in and out of the tech field).

## Our Micro Pressure Sensor

- Size:
  - 0.1 in in diameter
- Sensitivity Range:
  - Ideally takes 20-40 PSI but it should be able to withstand up to 100 PSI for safety
- Feedback/Reporting Data:
  - Bluetooth connection that connects back to a paired app to display what it sensed

## MEMs Example



(PDF) Pressure Measurement at Biomedical Interfaces,  
[www.researchgate.net/publication/221914882-Pressure\\_Measurement\\_at\\_Biomedical\\_Interfaces](http://www.researchgate.net/publication/221914882-Pressure_Measurement_at_Biomedical_Interfaces). Accessed 8 Apr. 2026.



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- Avnet. "Pressure Sensors: The Design Engineer's Guide." Avent Abacus, 2026, [my.avnet.com/abacus/solutions/technologies/sensors/pressure-sensors/types/](http://my.avnet.com/abacus/solutions/technologies/sensors/pressure-sensors/types/).
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