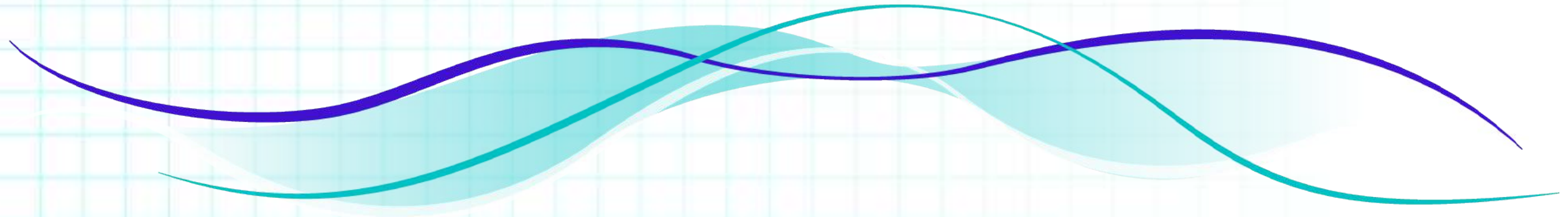


vocalZoom

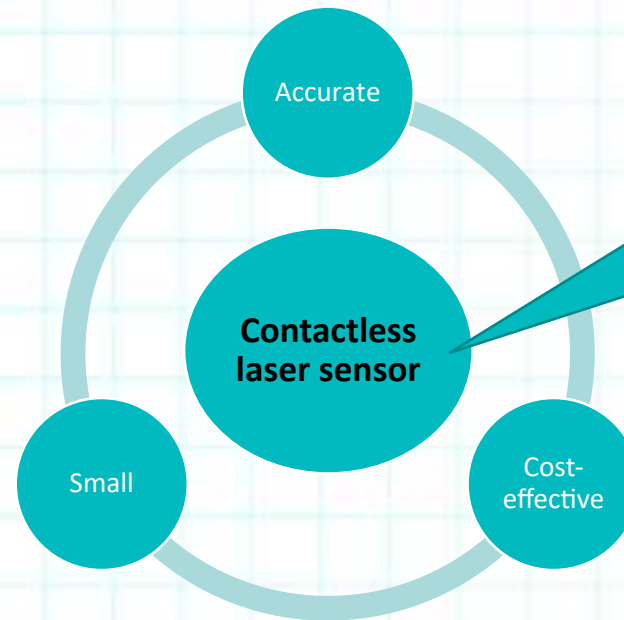
**Agile and versatile Monitoring
For Industry 4.0**





VocalZoom Solution

- Agile, versatile and cost-effective:
 - Fast ROI, solving specific, urgent issues with a simple low cost installation.
 - Scales to full IOT platform of choice.



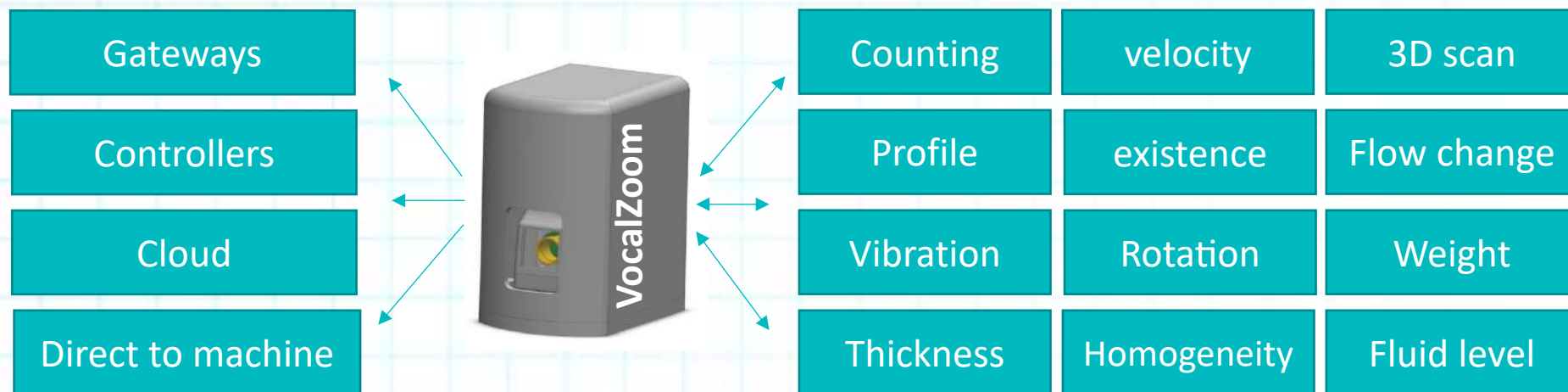
Agile:

Easy to install
Works on any surface
No wiring
No downtime



VocalZoom versatile solution

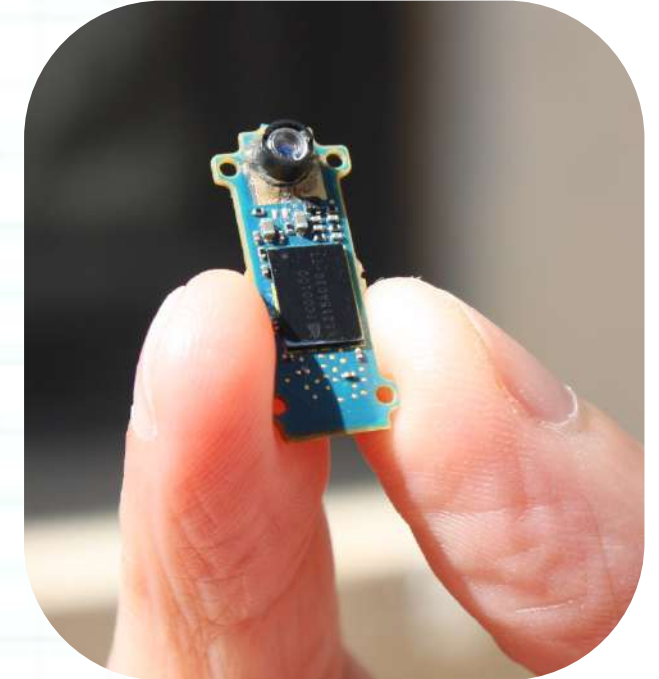
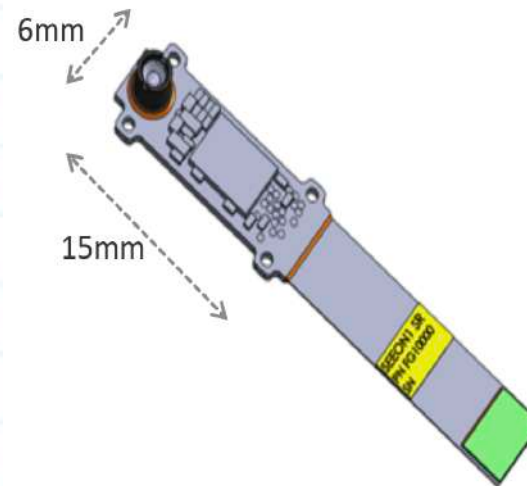
- One sensor for multiple use cases
- Direct connection to commonly used equipment
- Built in data processing
- Easy and low cost contactless installation



Core technology

- **Laser sensor with unique hardware design**
 - SMLD (Self-mix-laser-diode)
 - Superior accuracy and low bill of materials
- Operating distance up to 3 meters
 - Few models exist: 4 cm, 1 m, and more in the future.
- Standard Digital output with multiple data types: Velocity, distance
- Robust to environmental noise and ambient light

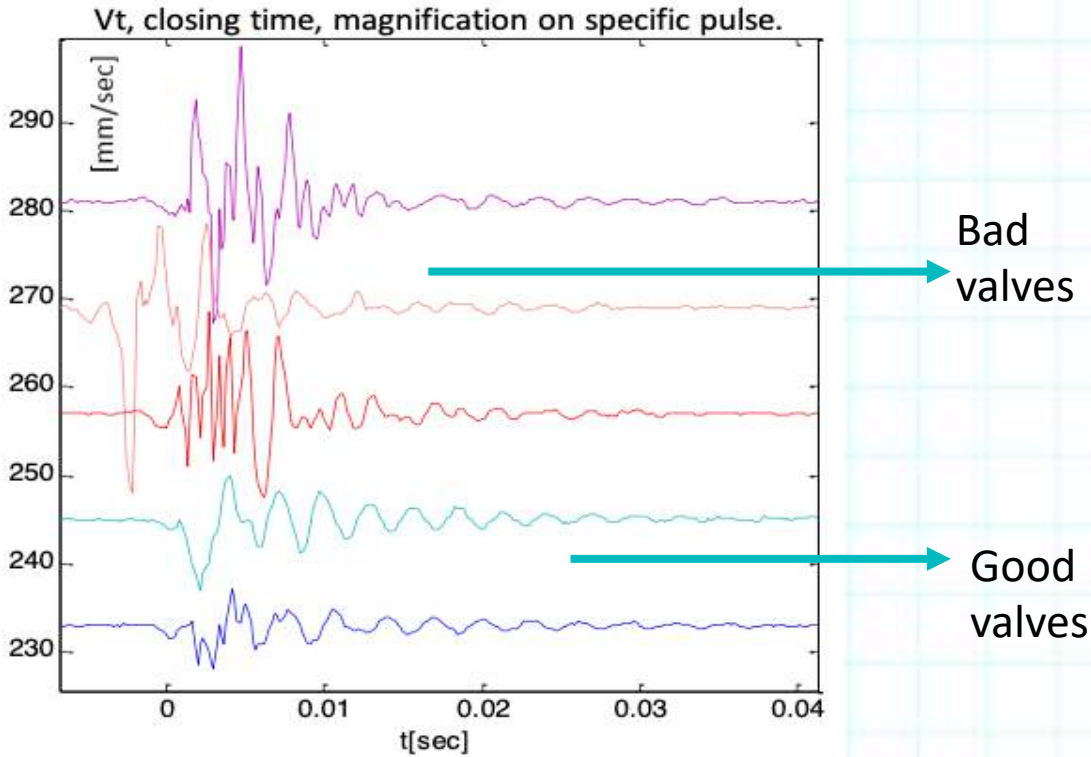
- Dimensions:



- Other markets: Vital signs measurement, voice sensing, biometrics, 3D sensing, Automotive sensors, etc.



Indirect valves monitoring - vibration

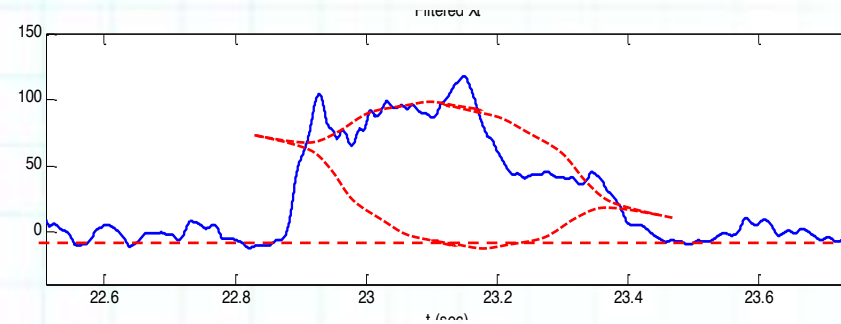
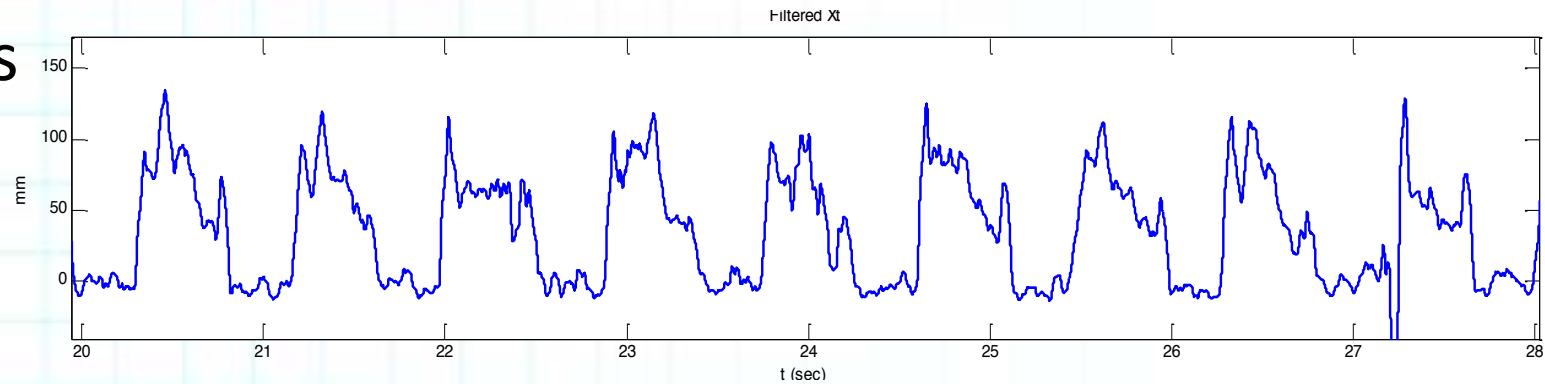




Seal/leak monitoring

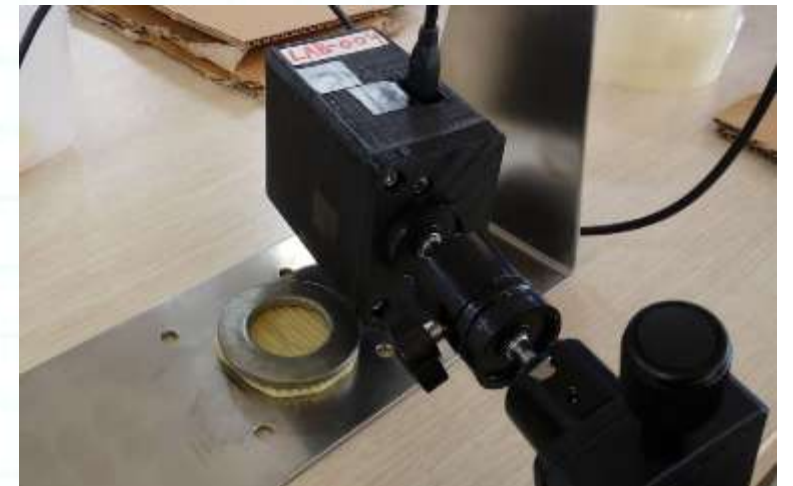
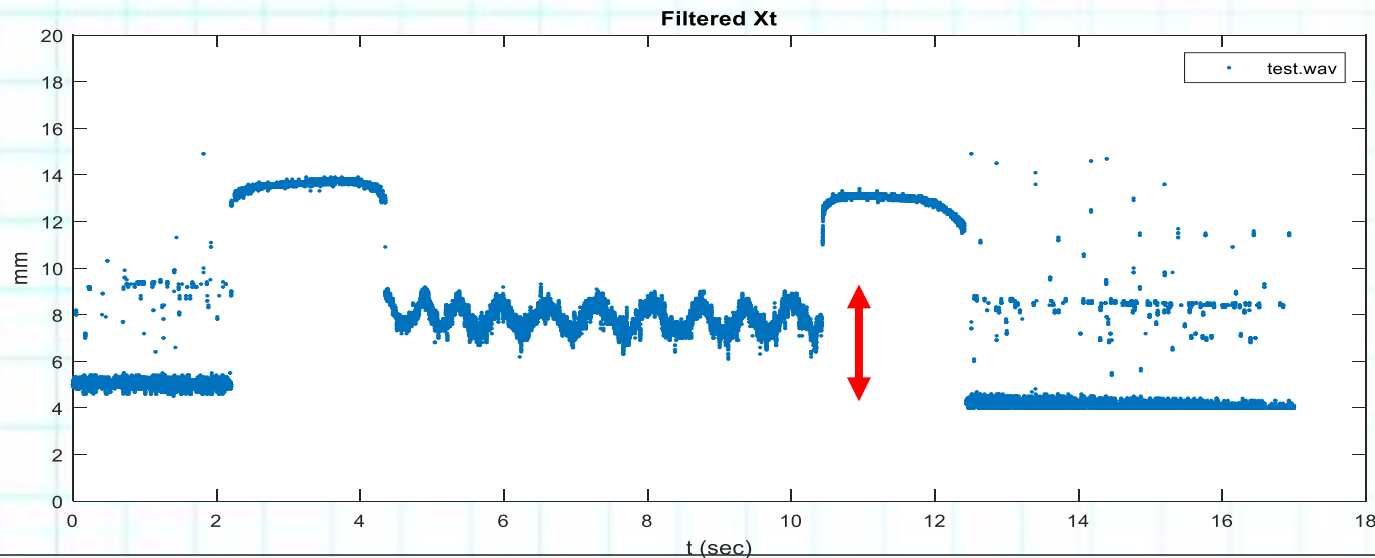
Use case: Detect the contour of a bag using the distance measurement:

1. Distance between bags
2. Shape of the bag



Thickness/profile

- Use case: measuring thickness of potato chips
- Real time measure of chips height
- Height indicates when knives should be replaced





Market verticals: Machinery predictive maintenance

Retrofit on a large install base of residential air-conditioning units.



Measure vibrations caused by bearings in electric motors. Contactless sensor saves expensive wiring and accesses any location on the engine.



Measure vibrations of small electric motors. Such as in packaging machines or on industrial robots.



Measure the vibrations of fans in large data centers. Having one sensor on each fan is too expensive. Having a contactless sensor on a robot is much cheaper.





Market verticals: Oil & Gas

Vibration-based
Flow meters need
cheaper and more
accurate sensors.



Hot and explosive pipes
and machinery require
contactless and non-
intrusive sensing for
leaks, pressure and
predictive measurement.

Sand detection in pipes for
erosion and corrosion
measurement.
Steam pressure
measurement on hot pipes.



Driller head vibration
indicates failure.
Downtime is extremely
long. Conventional
sensors are hard to
deploy on moving
machinery.



Market verticals: motion sensing

Using drones to detect distance and motion with high accuracy can help distinguish between an apple on a tree from the leaves.



Leak detection in pipes is easy with vibration sensing. Deploying contactless sensors reduce cost and prevent installation failures.



Contactless sensing of moving parts in press machines improves accuracy and reduce damage to the raw material.



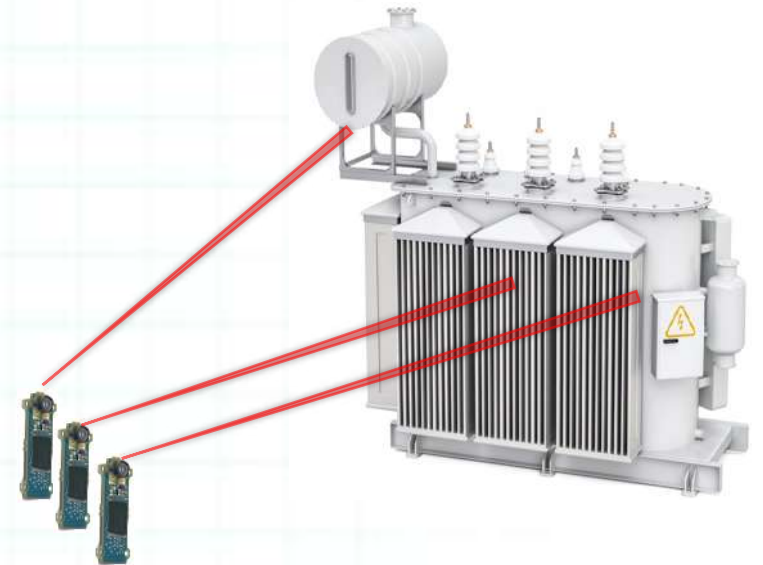
Accurate measurement of membranes inside highly accurate valves can detect valve failures and leaks.





Market verticals: Power & Energy

- Retrofit of sensing solutions on power transforms, and turbines involve a long process of certifications. Contactless sensors are much easier and faster to deploy.
- Using multiple VocalZoom sensors is easy and minimal in infrastructure.
- VocalZoom sensors can point to any location on the transformer and provide a large amount of valuable data.
- The VocalZoom sensor is much more robust for different mounting configurations.





Evaluation kit



- Components:
 1. VocalZoom sensor packaged in a case for easy mounting on tripod or similar mounting device.
 2. Interface box to connect the sensor to a PC/Laptop USB port.
 3. Data acquisition software with basic visualization tools.

