**Summary of 2D/3D Scanner**

**Pepperl+Fuchs**

Sensor List:

\*Sensor evaluation area up to 700mm distance and 310mm.

|  |  |  |
| --- | --- | --- |
| **Sensor** | **Application** | **Features** |
| SmartRunner Explorer | * Measurement and inspection of metal sheet * Volume measurement of packages and boxes | * Data sensor with height profile and 2D image output * Height profile output in world coordinates of 0.01m resolution * Comfortable integration into the programming environment by DDL * Interface: IO’s and Ethernet TCP/IP |
| SmartRunner Matcher | * Presence check * Position output * Completeness check | * Highly accurate position output in 0.1mm increments * Up to 32 jobs in one sensor * Independent adjustments of component tolerance and position tolerance * Inteface: IO’s, RS485, fieldbusses via gateways |
| SmartRunner Detector | * Access control * Area monioring for machine protection | * Presence check of tiny objects * Easy parametrisation * Freely definable object sizes and region of interest * Interface: IO’s, RS485, fieldbusses via gateways |

Wide range of Accessories:

* Gateways (via RS485) for fieldbuss connection:
  + PROFINET
  + PROFIBUS
  + EtherNet/IP
  + EtherCAT
* Welding protection housing
* Mounting brackets
* Cables

**Question Asked:**

Can the sensor measure the straightness of plant’s stem?

Require testing.

**Automation Technology**

Advantages of AT Sensors:

* Resolution up to 4.096 Pixels / Profile (accuracy)
* X-FOV from 7mm to 1.800mm (big parts)
* Fast: up to 200.000 Hz (speed)
* Dual Head Sensors (shadowing & occlusions)
* AT Algorithms e.g. FIR-PEAK (Reflections)
* HDR MultiSlope (surfaces, meteral, color, shiny objects)
* Laser options (blue, green, red laser class: 2M, 3R, 3B)
* Laser-DOF, laserline thickness, laser focus & calibration
* MCS – Modular 3D Sensor

**Modular 3D Sensor (MCS Series)**

* Wide range of models with different configurations:
  + X-FOV
  + Working distance
  + Triangulation angle
  + Laser wavelength
  + Number of points per profile
  + Laser safety class
  + Dual sensor setup

![Diagram

Description automatically generated]()

**AT 3D Sensors with GENICAM3D**

*Scan3D Part Support*

* Allow transfer of multiple data from an AT 3D sensor to the PC for processing.
* Allow to output up to 10 differrent features regardless of the pixel format and algorithm.

*MultiPeak*

* Determines the operating mode of the peak detection algorithm.
* Extract multiple profiles or to eliminate false measurements due to disturbing reflections.

Example of application:

* Inspection of **glass plate thickness**

**wenglor**

***weCat3D Stainless Steel Sensors***

* For Food Environment, met the following standards:
  + CE
  + ROHS
  + ECOLAB
  + FDA
  + IP69K and more
* Capable for washdown applications

***Interfaces to Third-Party Products***

SDK

* SDK with example
* C++/C#/LabView
* Windows/Linux

GigE Vision

* Industrial standard interface GigE Vision
* Supported by many performant image processing software

**Question Asked:**

Can the sensor measure the straightness of plant’s stem?

We can scan the plant but for the straightness of plant depend on how you want to elavulate.