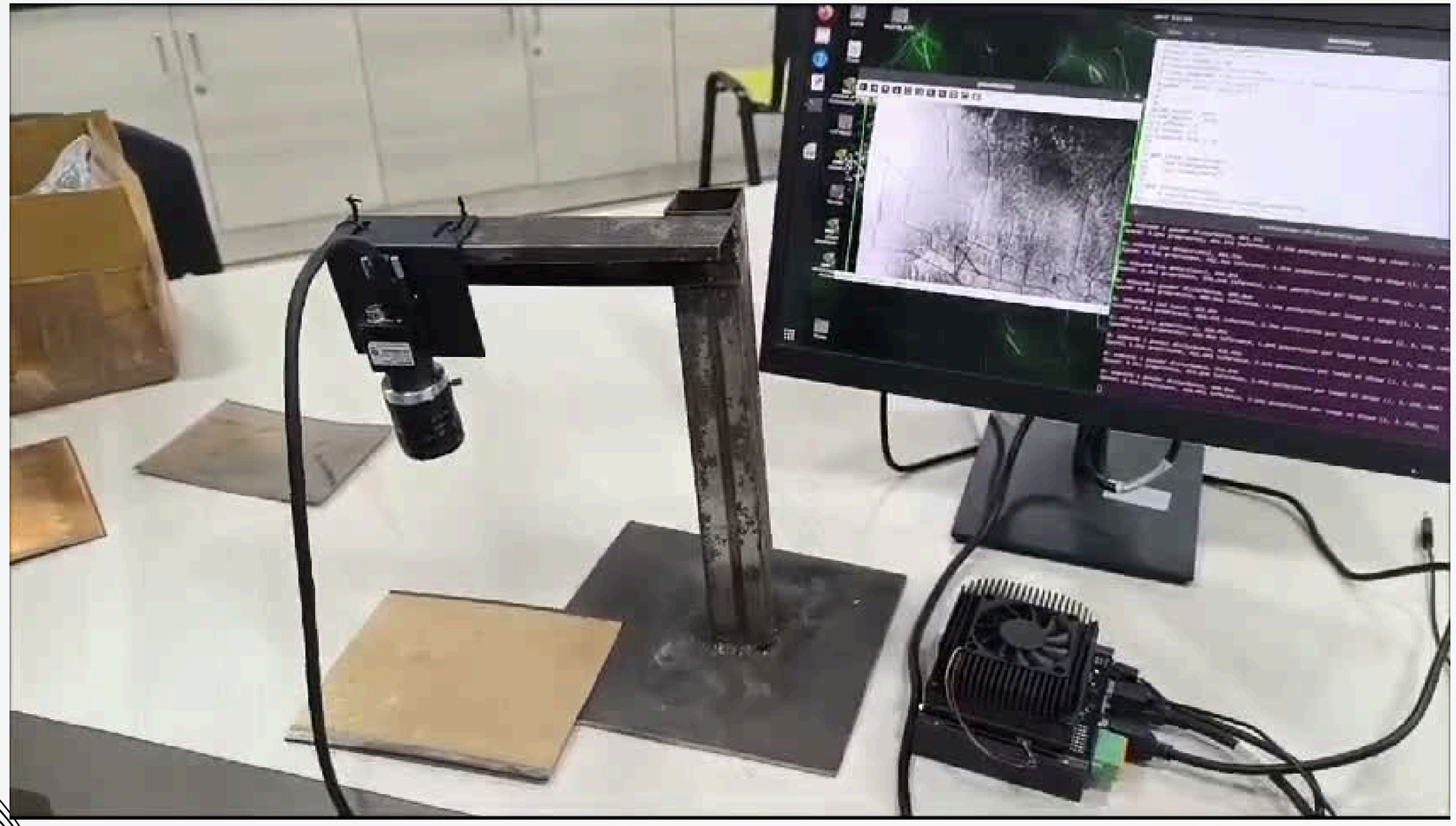
AUTOMATED MACHINE VISION-BASED FAULT DIAGNOSIS SYSTEM

DEFECT DETECTION MODEL



DEFECT TYPE: BLOW HOLES
CONFIDENCE LEVEL: 75%

DEFECT TYPE: POWDER DISTURBANCE
CONFIDENCE LEVEL: 80%

DEFECT TYPE: LEAD SWEAT
CONFIDENCE LEVEL: 76%

DEFECT TYPE: TIN SWEAT
CONFIDENCE LEVEL: 76%

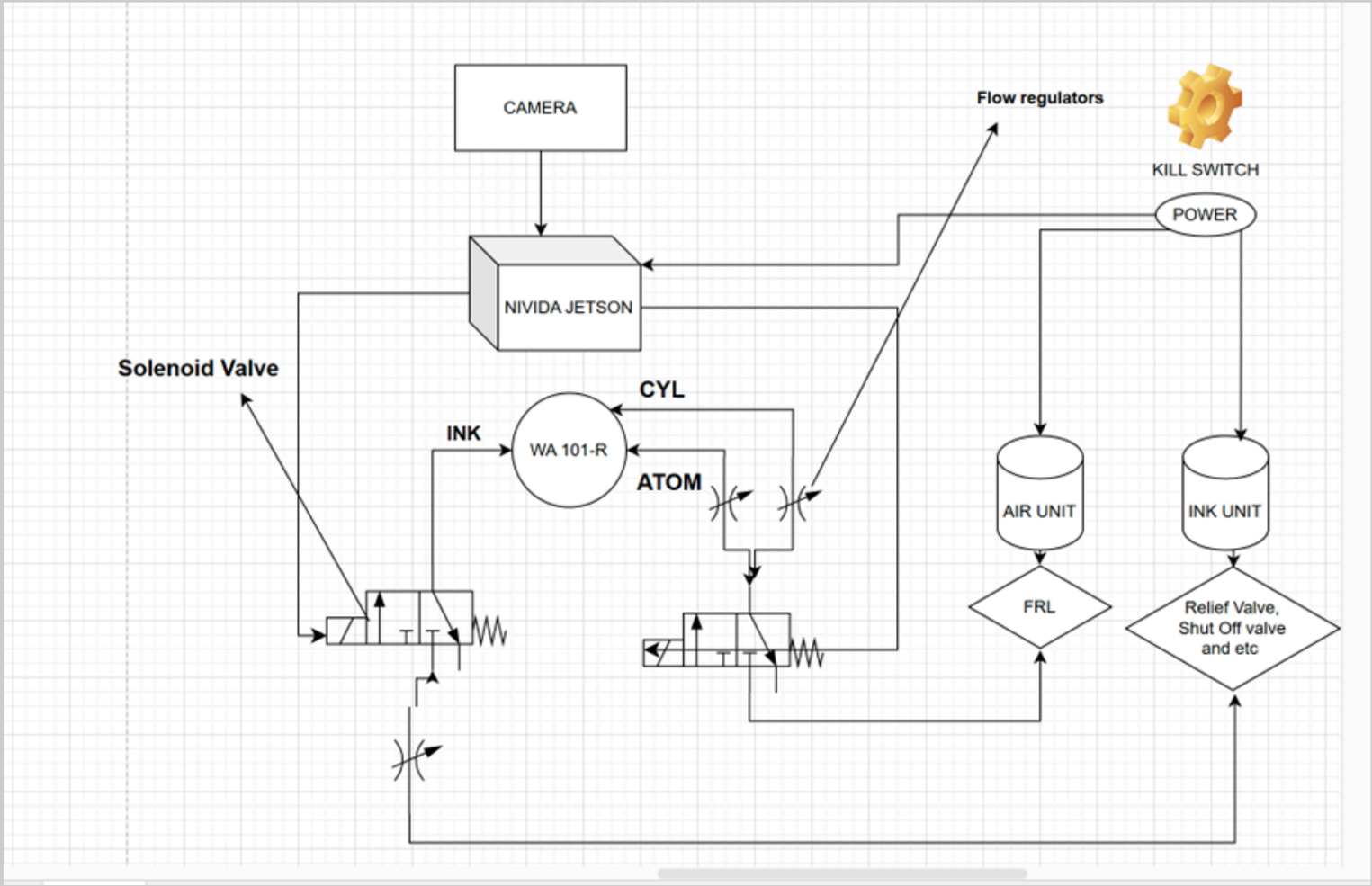
DEFECT TYPE: LEAD SWEAT
CONFIDENCE LEVEL: 76%

DEFECT TYPE: BLOW HOLES
CONFIDENCE LEVEL: 75%

ACTUATION SYSTEM

Automatic Round Spray Gun WA-101-R 0.8mm will do excellent job for the required task.
This is an industrial grade Automated spray gun commonly used for coatings on metals and its robust, with 0.8mm nozzle we can achieve 2cm dot spray without sacrificing much height (15cm).

FLOW CHART

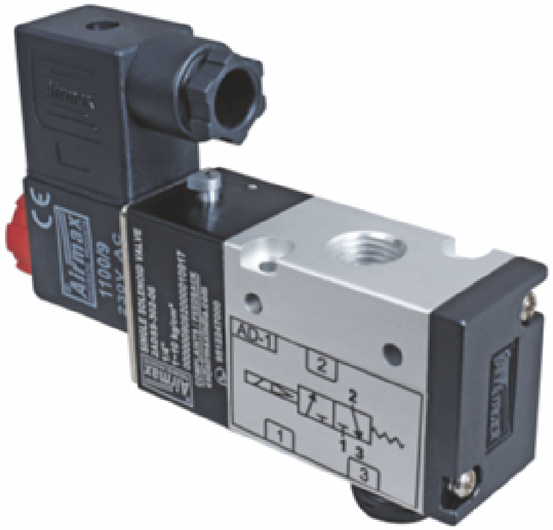

CAMERA
Flow regulators
KILL SWITCH
POWER
NIVIDA JETSON
Solenoid Valve
CYL
INK
WA 101-R
ATOM
AIR UNIT
INK UNIT
FRL
Relief Valve,
Shut Off valve
and etc

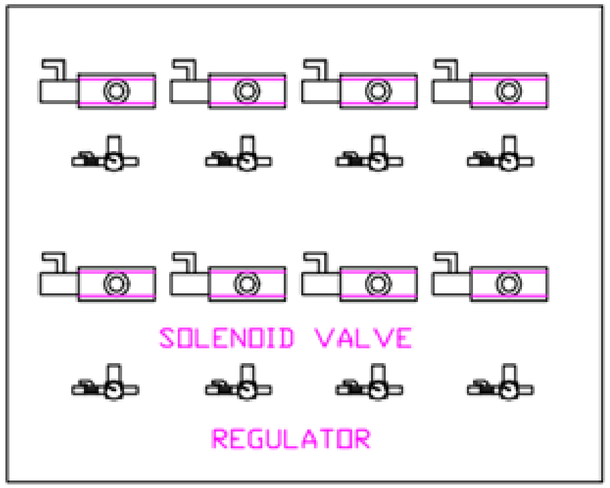
ACTUATION SYSTEM

To Automate the Control of the spray gun:

This task can be easily performed by 3/2 Solenoid valves controlled by our Nivida Jetson Xavier. The working of the systems is quick enough to act within a sec it sprays when on demand by our microcontrollers.

Each gun gets only one solenoid to control the both air channels but each air channel gets its own Flow regulator by this we can further control the output curve.





PNEUMMAIC PANNEL

INK SELECTION

We did tremendous amount of research on the proper selection of INK as per the needs provided. Factors to consider was:

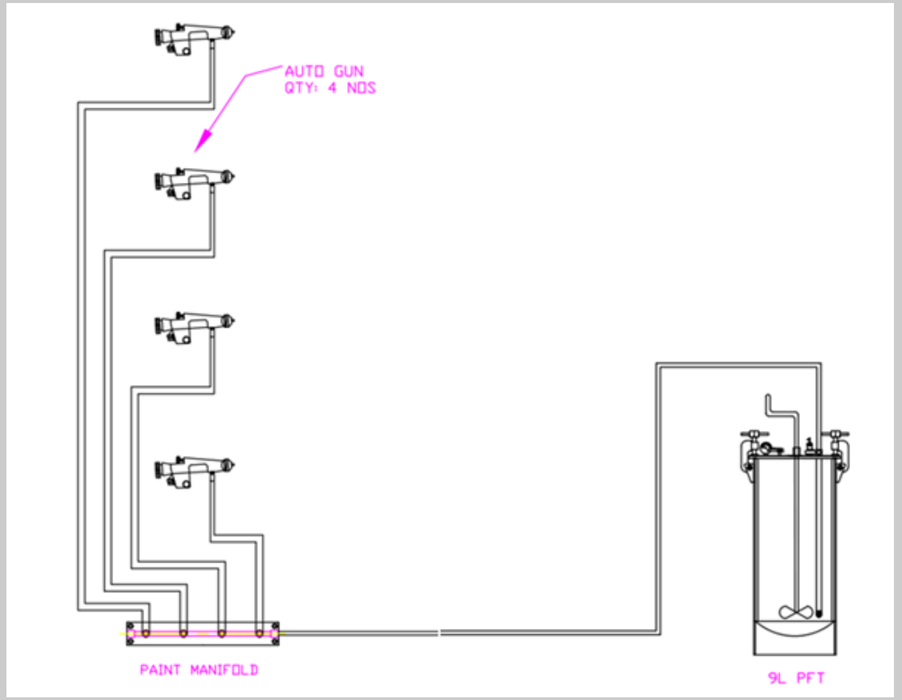
- Quick Dry
- Low Viscosity
- Atomization
- Stickiness to Metal Surfaces

We settled on Product Code: PANMARK (Marking INK) by AHS Trade & Services Pvt.Ltd.

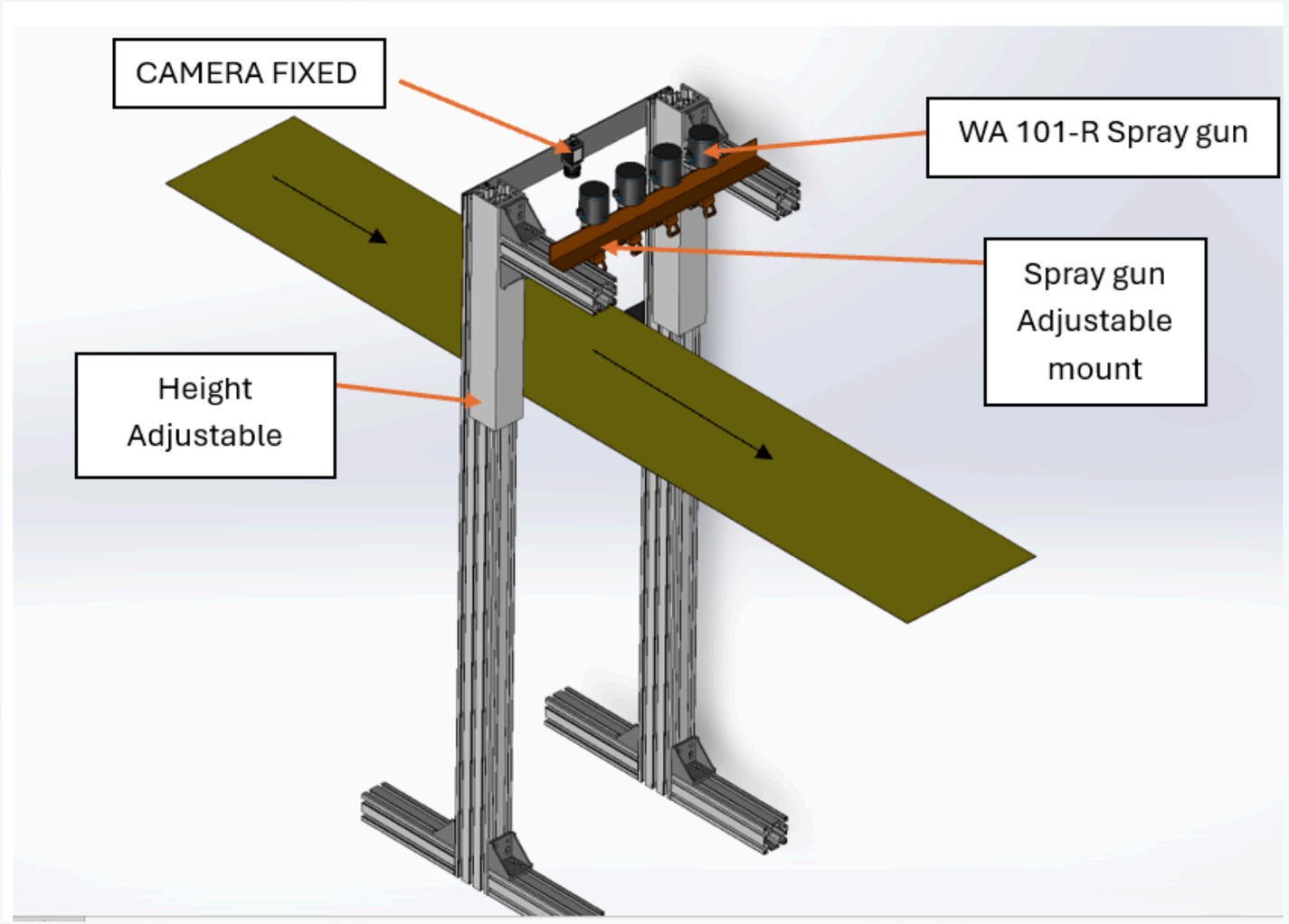
INK CONTROL SYSTEM

Similarly for ink supply, the paint manifold consists of Solenoid valves for each gun and in the addition of flow regulators. The pressurized fluid enters form the pressure feed tank and gets distributed in the manifold.
Again with the added basic features of relief valves, shutoff valves and etc.

The whole piping work for AIR and INK is done in industrial grade tubes.
The whole system will be attached to Feed & Flush system for Maintenance intervals.



CAD DESIGN


CAMERA FIXED
WA 101-R Spray gun
Spray gun Adjustable mount
Height Adjustable