

SUPPLEMENTARY MATERIAL

Research on inspection route of hanging environmental robot based on computational fluid dynamics

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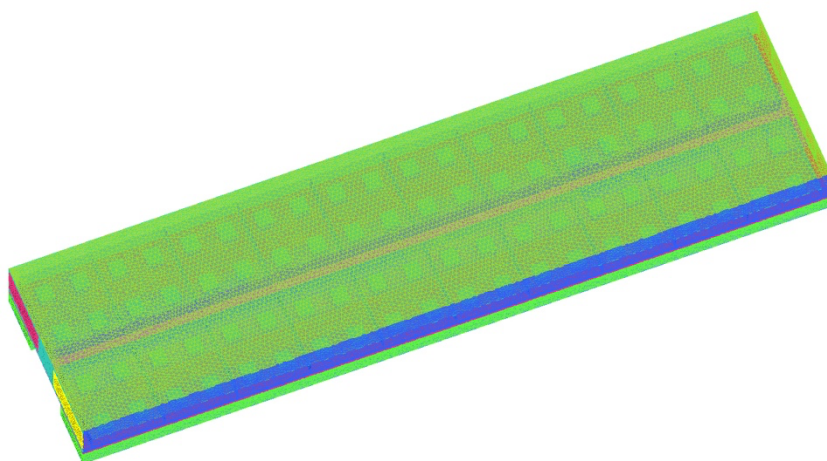


Figure S1. Model and grid display.

Table S1. Environmental data collection equipment.

Environmental parameter	Device name	Model	Measuring range	Measurement accuracy	Factory
Air temperature and humidity	Temperature-humidity transmitter.	VMS-WS	0~100%RH,-313.15~+353.15K;	±3%RH,±273.65K.	VEMSEE
	Temperature-humidity detector	THM-01	0~100%RH,-293.15~+333.15K;	±3%RH,±273.45K	DELIXI ELECTRIC
Wall temperature	Infrared thermometer	ST590C	-323.15~863.15K	±275.15K	SMART SENSOR
Building dimensions.	Laser rangefinder	DB50	0~50 m	±1.5 mm	DELIXI ELECTRIC
Wind speed	Anemometer	AS816	0.3~30 m·s ⁻¹	±5%	SMART SENSOR
	Air volume sensor	D6F-V03A1	0~3 m·s ⁻¹	±10%F.S.	OMRON
NH ₃	NH ₃ transmitter	VMS-NH3	0~70 mg·m ⁻³	±8%	VEMSEE

Note: all equipment has been calibrated before leaving the factory.

Table S2. Environmental parameter management standards for nursery piggeries.

Environmental parameter	Standard
Temperature (K)	Comfort range: 293.15~298.15 Critical value: 289.15~301.15
Wind speed ($\text{m}\cdot\text{s}^{-1}$)	Winter: ≤ 0.2 Summer: ≤ 0.6
Humidity (% RH)	Comfort range: 60~70 Critical value: 50~80
NH_3 ($\text{mg}\cdot\text{m}^{-3}$)	≤ 20

K, kelvin; RH, relative humidity.