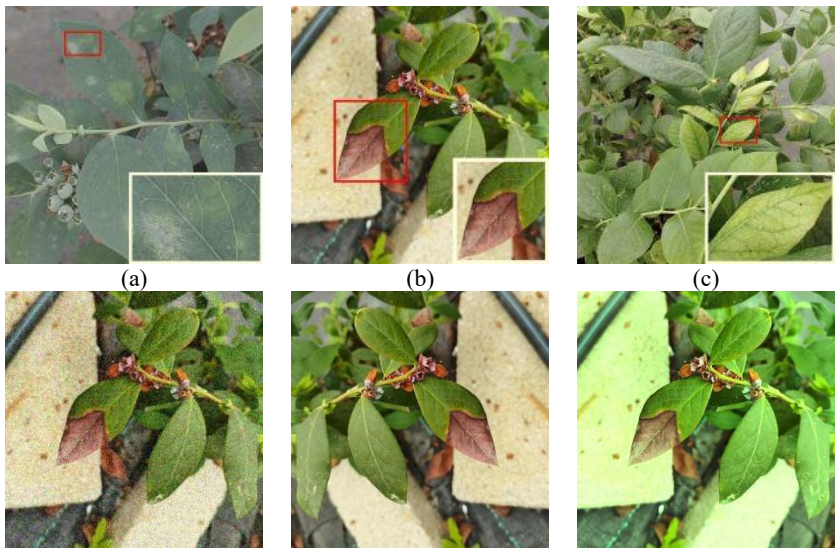
ELSEVIER

Computers and Electronics in Agriculture



(a) (b) (c)

(d) (e) (f)

Fig. 1. Blueberry health dataset and its enhancement method. (a) Powdery mildew. (b) Leaf anthracnose. (c) Nutrient deficiency. (d) Noise. (e) Rotary scaling. (f) Color transformation

(a) (b)

Fig. 2. Comparison of low-resolution images before and after preprocessing. (a) Original image. (b) Pre-processed images

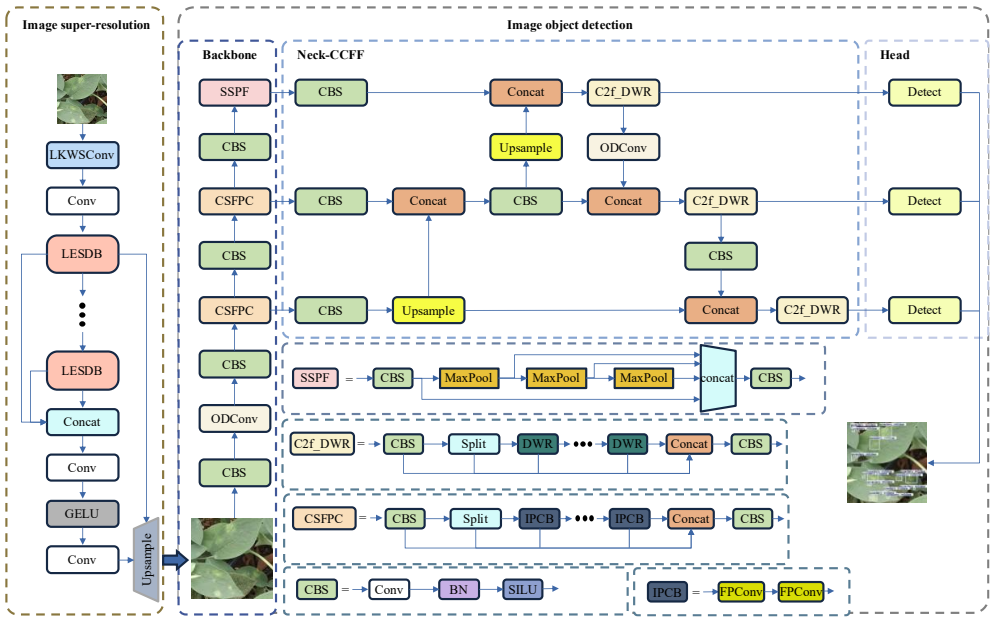


Fig. 3. LBSR-YOLO algorithm structure

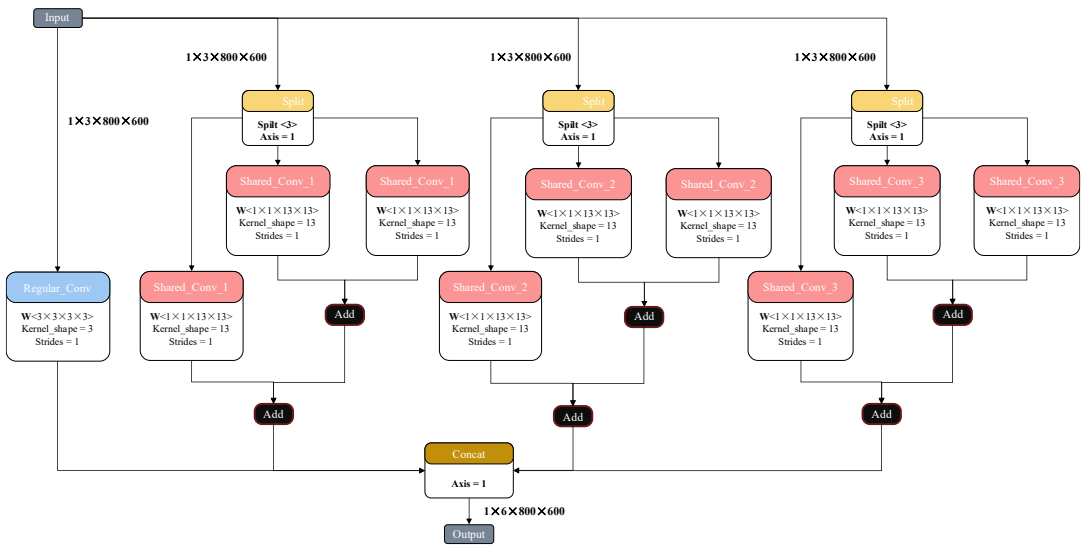


Fig. 4. Large Kernel Weight Sharing Convolution

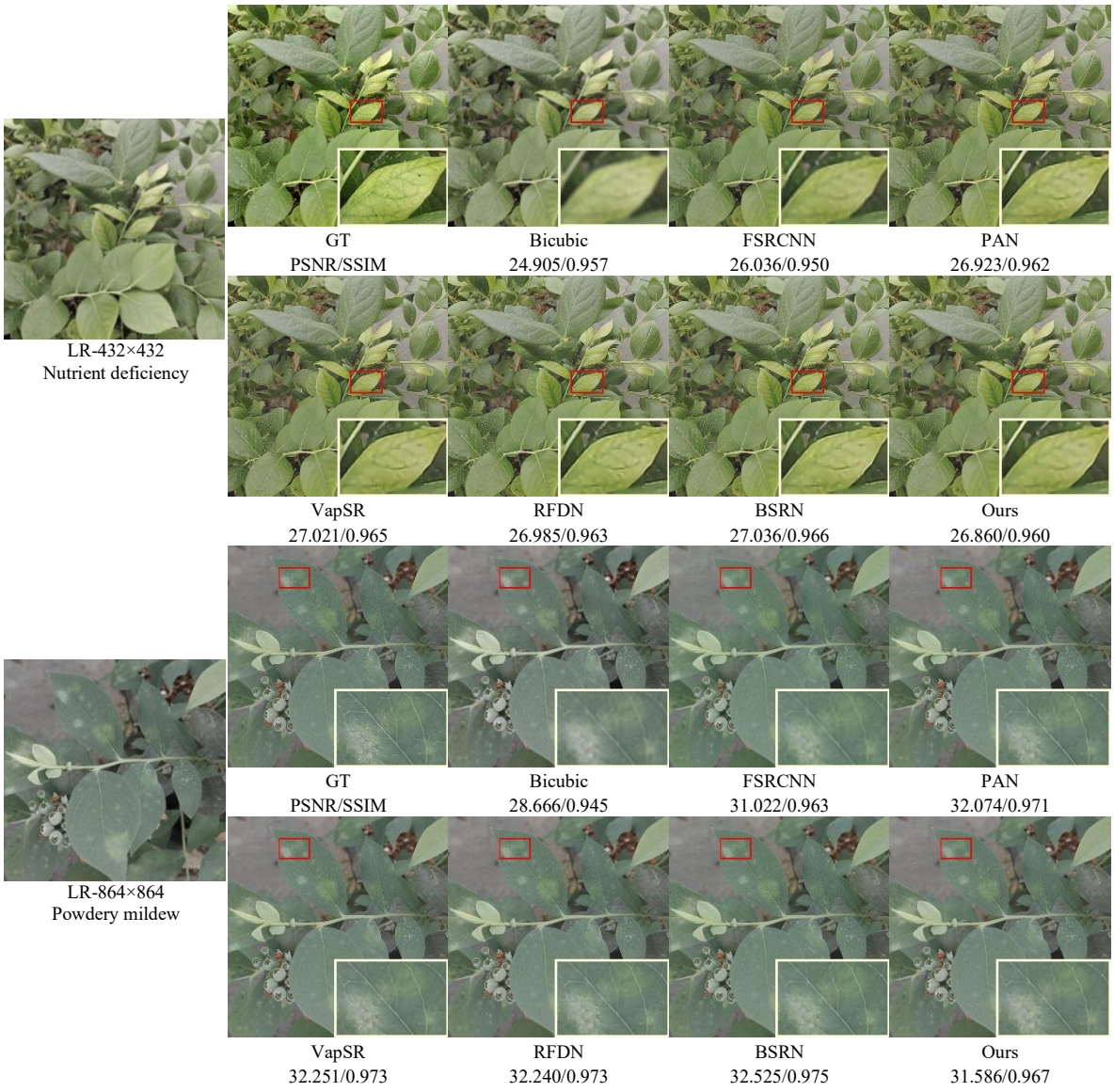
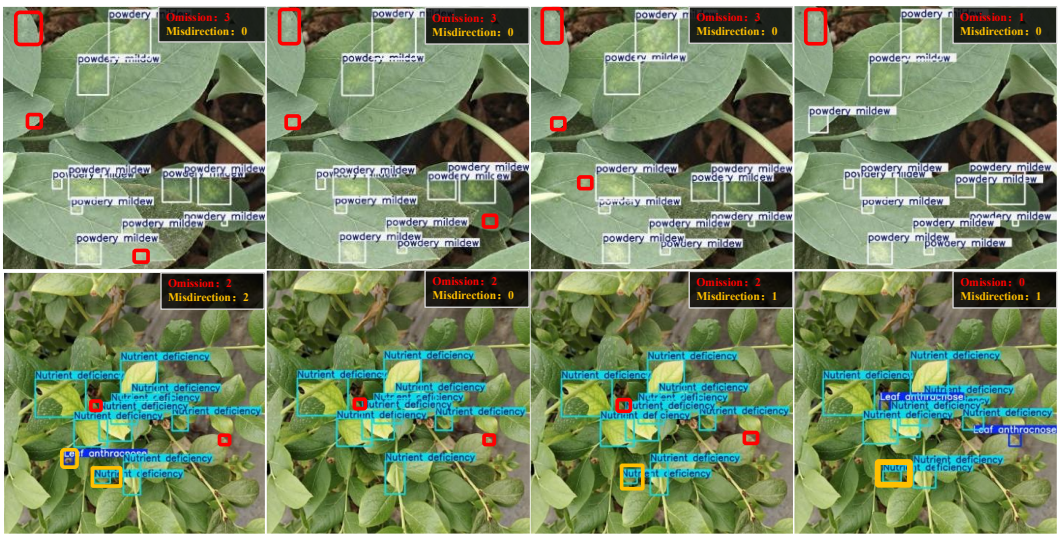


Fig. 7. The actual operation comparison of each image super-resolution reconstruction algorithm



YOLOv8n YOLOv10n YOLOv11n Ours

Fig. 8. The actual operation comparison of each target detection algorithm

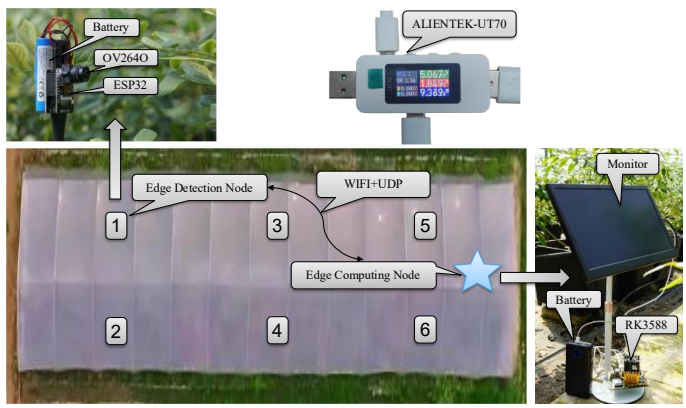
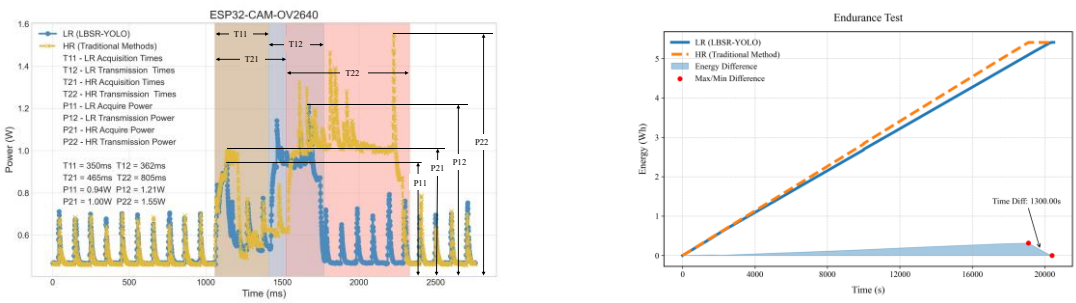


Fig. 9. Deployment of LBSR-YOLO and WSN



(a) (b)

Fig.10 Energy consumption of edge detection node. (a) Energy consumption of single picture acquisition and transmission. (b) The endurance of

continuous image acquisition and transmission

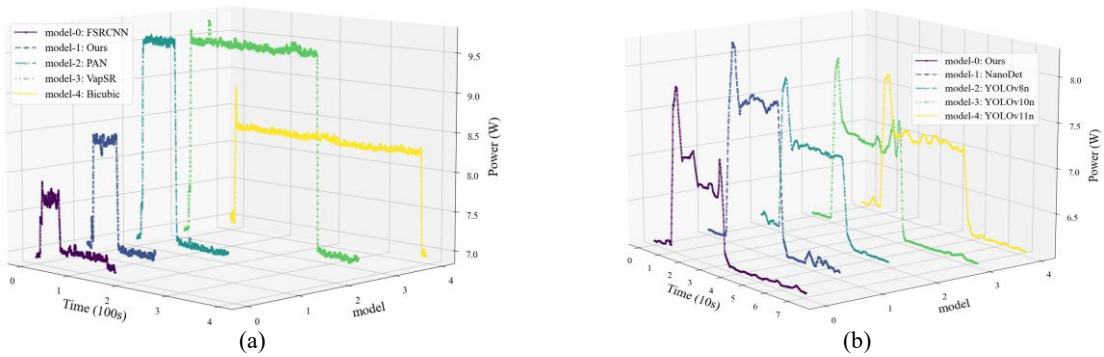


Fig. 11. Energy consumption of edge computing nodes. (a) Image super-resolution reconstruction algorithm. (b) Image target detection algorithm

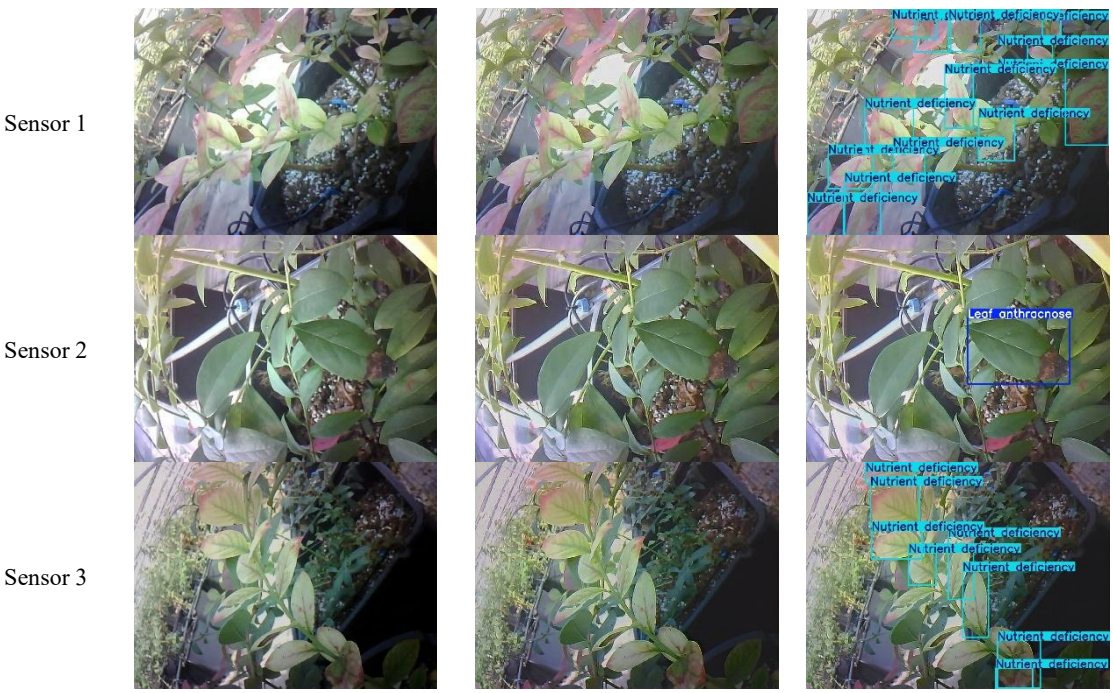


Fig. 12 Field deployment function display