Comparison and analysis of AGV navigation modes

category	Magnetic strip navigation AGV	Two-dimensional code navigation AGV	Laser SLAM navigation AGV
Path guidance mode	Magnetic strips are attached to the ground, and magnetic navigation sensors guide by sensing the strips	The QR code is affixed to the ground and the navigation camera recognizes it for guidance	The virtual scene map is constructed by scanning the environment with laser sensors, and the running track is planned according to the map on the built-in scheduling system of AGV, and the AGV is guided according to the running track planned by the system
Site control mode	AGV built-in motherboard controller, site control without peripheral scheduling system control	The station control of AGV needs to be carried out through Wifi industrial wireless network to connect to the peripheral dispatching system	In the case of fixed station operation, the site control can be connected to the peripheral scheduling system, or the built-in scheduling system, which can schedule and control the site
Communication with the elevator	Wifi network/RADIO frequency network (2.4g ISM free band signal)	Wifi network/RADIO frequency network (2.4g ISM free band signal)	Wifi network/RADIO frequency network (2.4g ISM free band signal)
advantages	The construction of the route laying project is simple and fast, the cost of magnetic strip is low, and the operation is relatively stable. The positioning accuracy is 10mm through RFID	There is no need for large area and long distance uninterrupted laying route, only need to lay a TWO- DIMENSIONAL code at an interval of 1 meter. It is convenient and fast to replace the two-dimensional code, which is suitable for unmanned storage workshop	The laser sensor scans the surrounding environment to build a map, and the path planning is convenient without laying any guiding device on the ground. The running route can be arbitrarily changed, and the construction is relatively simple
disadvantages	When the route changes, the magnetic strip needs to be re-laid. The AGV runs along the fixed magnetic strip track and cannot change the route in real time	The TWO-DIMENSIONAL code needs regular maintenance and cleaning. If the two-dimensional code is damaged and blurred or blocked, the AGV cannot run and the stop accuracy is relatively poor, 20mm	The overall import cost is relatively high, and the scene that is not suitable for the operating area environment often changes has relatively high requirements on the environment, and is easily affected by the visibility of the light and the flatness of the ground