"随时随递"智能驿站机器人

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Summary. *Due to the improvement of the national economy and the continuous development of e-commerce, the scale of online shopping continues to expand. However, existing express delivery stations generally have management problems and cannot be open all day, which increases the management difficulty and cost of the enterprise and provides users with convenience. cause inconvenience. This work designs an efficient cooperation system consisting of a post robot, a gantry robot and an app management terminal. It uses digital twin technology to read the robot's motion parameters and working status, and creates an intelligent control system with strong endurance performance, obstacle surmounting capabilities, and information collection capabilities, carry out scientific scheduling, adapt to various scenarios in logistics operations, and create highly practical smart stations to empower the transportation service industry.*

由于我国国民经济水平的提高以及电子商务的不断发展，网络购物规模不断扩大，网购人群不断增加，我国已连续多年成为全球最大的网络零售市场。在网络购物规模扩大的同时，仓库储存物资的数量大大增加，对物流行业的要求也在不断提高，物流点位更加分散、复杂，越来越多的快递驿站成为便利人们生活的重要设施。

图 1 网络购物发展情况

而现有的快递驿站普遍存在地摊式，无逻辑管理的问题，现有老旧城区快递驿站大多位于小区居民楼内，受地形限制，货物在入库前通常需要进行部分爬楼越障，且老旧小区路面状况较差，往往需要人工进行管理和

搬运，提高了人工成本的同时效率十分低下，并且一般的快递驿站无法实现 24 小时营业，给用户取件带来不便。因此对快递驿站进行智能化、现代化改造，提高运作效率迫在眉睫。
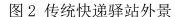

图 2 传统快递驿站外景

图 3 传统快递驿站内景

由于快递驿站存在的效率低下的问题，当前市面上有采用自助取件的运营模式：用户可以自行在快递货架上挑拣自己的快递，最后在出库口扫码出库即可。这种运营模式去除了工作人员代为挑拣快递的流程，可以在一定程度上提高了运作效率。但取件时不需要验证用户的身份信息即可取件存在快递丢失的风险，安全性差。

图 4 自助快递驿站

面向单板滑雪竞速训练的数字孪生系统

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Summary. *Project study to snowboarding movement process as the main body, aiming at high speed, track complex competitive athletes, based on ali cloud server, the integrated use of motor intelligent precise perception technology, sensor data fusion and synchronous positioning technology, digital technology and the perception and fusion twin, cloud computing, cloud edge techniques and so on, can realize the connection between people and things management, The athletes' movement was intelligently sensed, the filtering algorithm was used to*