Control and Software Engineering
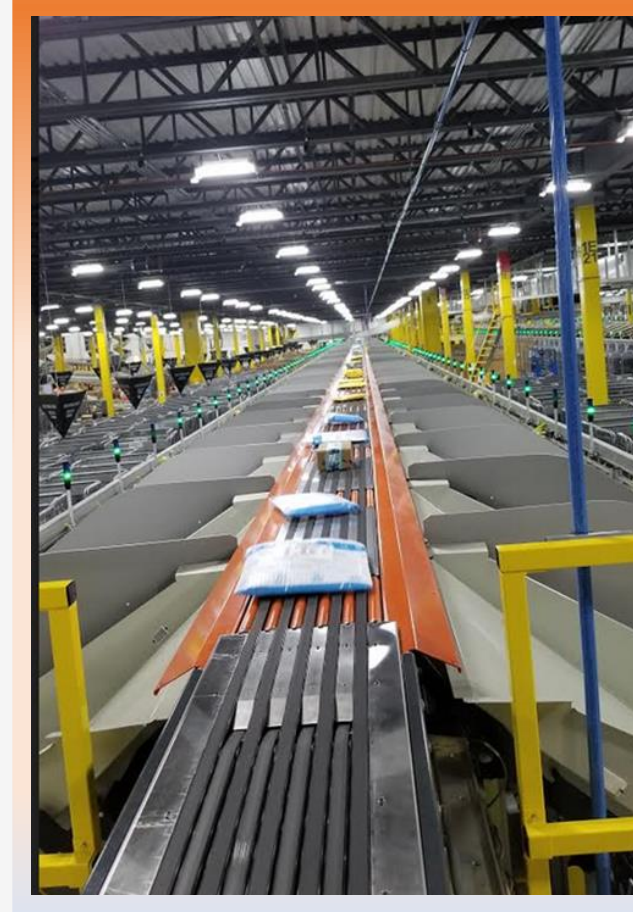
By AClusterLLC USA

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AClusterLLC

About Acluster LLC

We are conveniently located in the Baltimore suburb in Maryland, USA only 30 minutes away from Washington DC. Since inception in 2007, A cluster LLC has provided technical solution for the Robotics, Logistic and Material Handling industry in the USA. As an expert solution integrator and innovative designer, the company has worked with many partnerships to solve cutting edge industrial automation challenges. Partnering with PostIs USA and Fluence USA it has designed many solution which is deployed globally in USPS, DHL, UPS,UK Mail, Russia Post, Canada Post, Sick AG, Amazon etc.... Our expertise includes Robotics integration, eCommerce fulfillment center design, mathematical modeling, concept simulation, business "use cases" modeling, machine vision, machine learning, postal automation, factory automation, auto-ID, camera-based motion tracking and inspection systems for the industry. We are a system integrator committed to provide a complete and proven turnkey technology solution for the project, leveraging many years of experience in the process automation and engineering innovation.
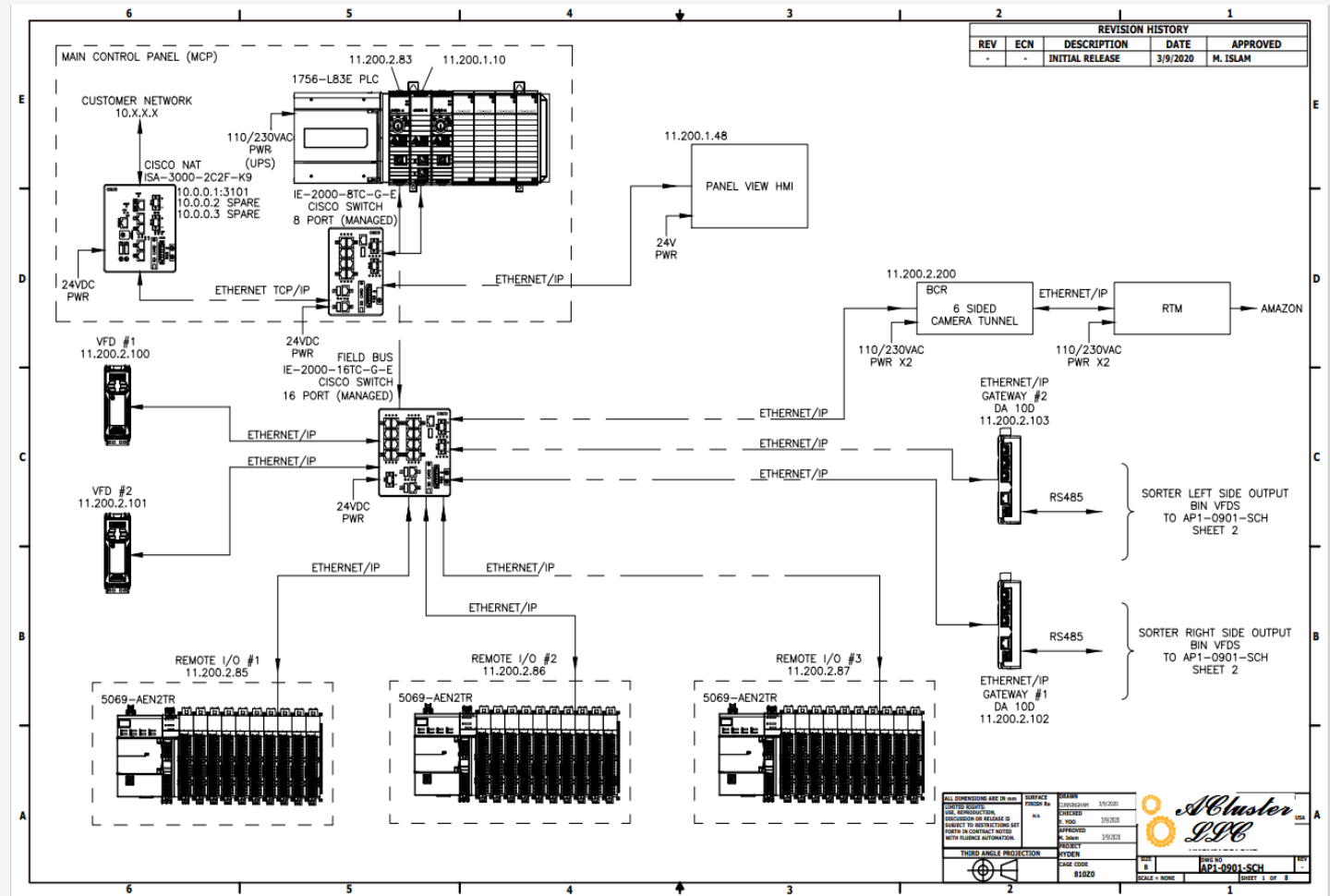

Our solution for Amazon fulfillment center in CA

Control Engineering: Our solutions deployed globally

Our team is a global leader in designing and deploying large scale distributed control architecture across many platform. Our seamless control platform ties the embedded system to machine control to upper level application software to back end database to cloud-based web application. Our designed system ties thousands of servos, VFDs, robotic application, machines, info management system to distributed industrial solutions.

❑ Our expertise on control architecture
- ➢ We design advance motion control solution for multi axis Robotic application
- ➢ We integrate Digital I/O, Analog I/O, PWM across the
    - ➢ Ethernet/IP
    - ➢ TCP/IP
    - ➢ UDP
    - ➢ Ether Cat
    - ➢ RS232RS485,RS422
    - ➢ Modbus
    - ➢ Can Bus, CanOpen bus
    - ➢ Asi bus
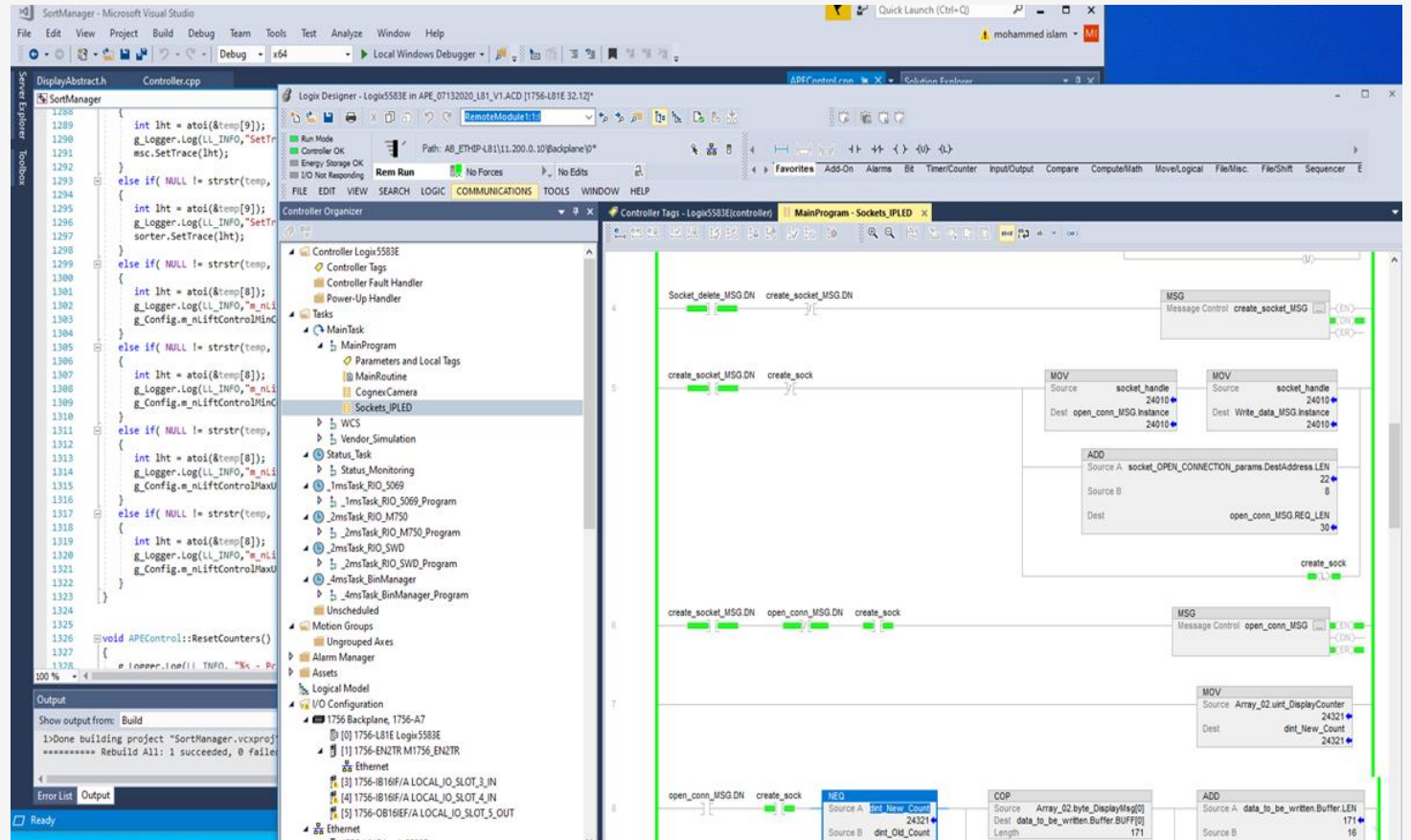   - ➢ ControlNet, DeviceNet, ProfiNet etc

Our designed control system for Fluence Automation deployed in Amazon Hyden sorter!

Control Engineering: PLC and Software for motion control

Our team solve complex motion control system by integrating PLC control with the PC based application. We facilitate real-time communication with the PC application with the Servo, PLC and Robotics.
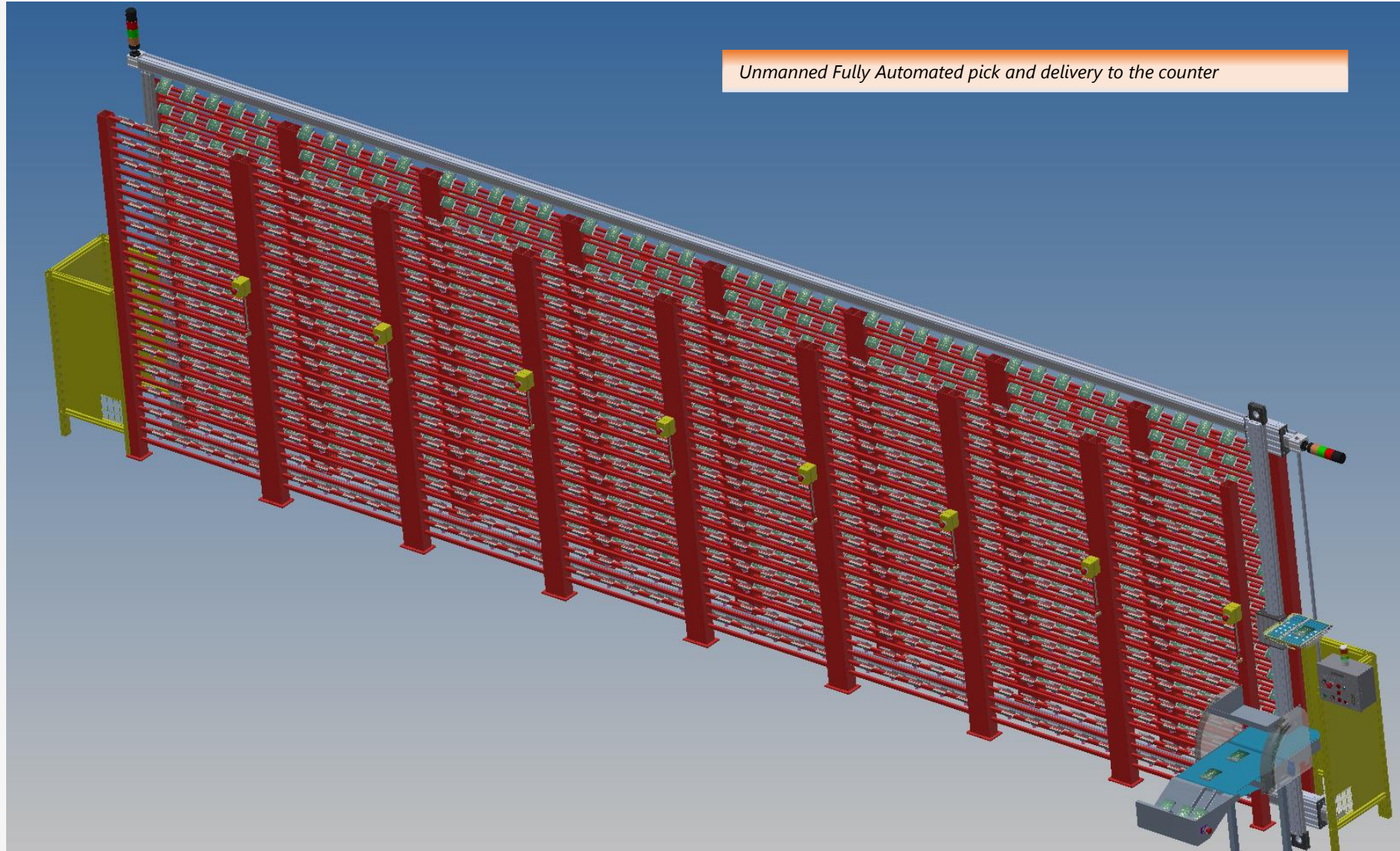
❑ Our PLC and motion control software
  ➢ We write large scale PLC and motion control software using Structured Text, FBD, SFC, LD and IL
  ➢ We have created solution in many platform
    ➢ RSLogix for Allen Bradley
    ➢ Codesys for Lenze, Nidec etc
    ➢ Simatic for Simens
    ➢ Melsoft for Mitsubisi
    ➢ PL7
    ➢ Cx Programmer
    ➢ Machine Control studio
    ➢ Crimson

Our designed control system for Fluence Automation USA, deployed in Amazon!

Our Control Software manage: Automatic Passport Retrieval and Counter delivery Robot

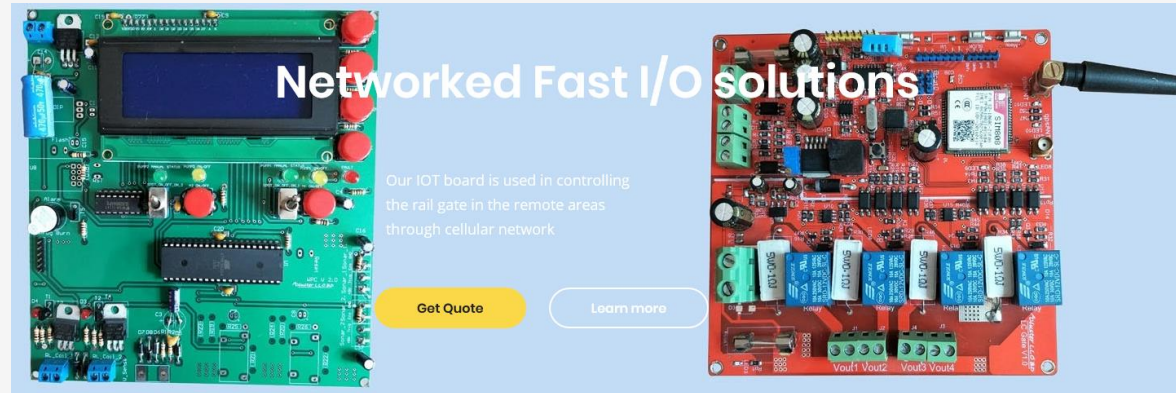*Unmanned Fully Automated pick and delivery to the counter*

Our Control architecture seamlessly integrate: IOT solutions over cellular network

Control and monitor your industrial or home equipment's and sensors from anywhere in the world. We manage the secure connection through our proprietary data encryption methodology.
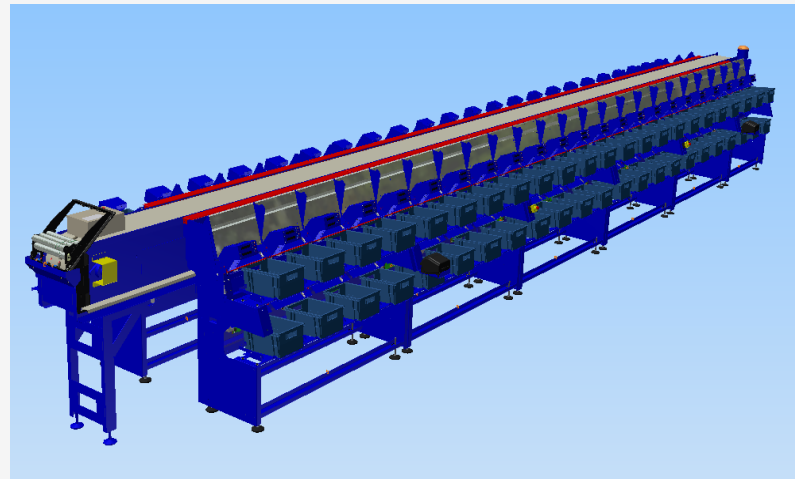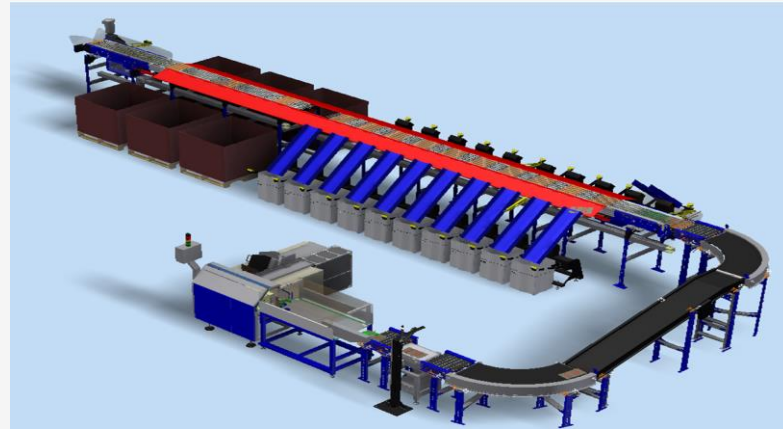
❑ IOT Controller
  - ➢ Can be accessed over the web
  - ➢ Can be accessed over the cellular network from any remote place
  - ➢ Use mesh network to communicate to central server with Radio frequency without needing a tower or cellular connection
  - ➢ Can be powered by battery, solar or wind
  - ➢ Remote control of the Motor, Lights, AC
  - ➢ Remote control of Gates, V/Vs, Pumps
  - ➢ Monitor Water level, moister content, fluid flow, fluid pressure from remote location across the globe
  - ➢ Hardware level authentication and data encryption for enhanced security
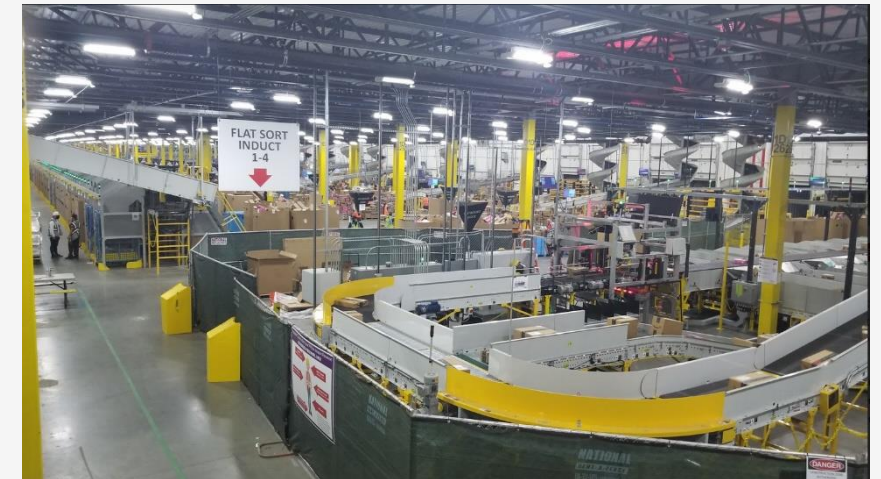

Networked Fast I/O solutions

Our IOT board is used in controlling the rail gate in the remote areas through cellular network

Get Quote   Learn more

Our Control software manages : Sorters and Material handling solutions

- ❑ Multiple sorters options
  - ➢ Primary loop sorter
  - ➢ Mix Mail Linear sorters
  - ➢ Mini Induct sorters
- ❑ Loop Sorter
  - ➢ Throughput 40,000/ Hour
  - ➢ 360 cells
- ❑ Mix Mail Sorter
  - ➢ Throughput 7200/ Hour
  - ➢ 100 Bins
  - ➢ Use 4 NBS sorter
  - ➢ Use 4 modular belting sorter
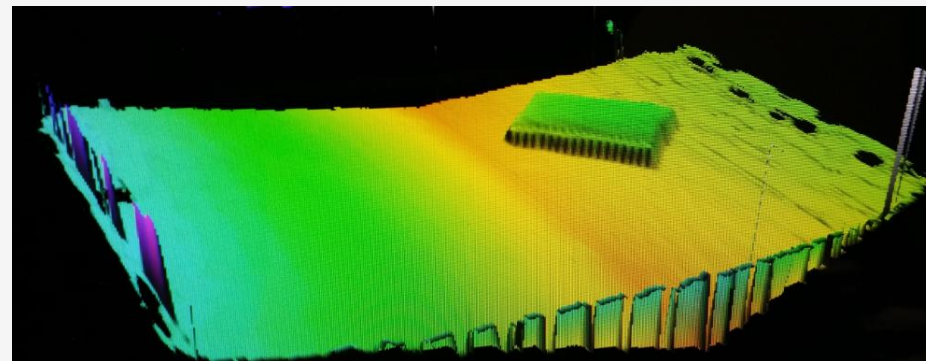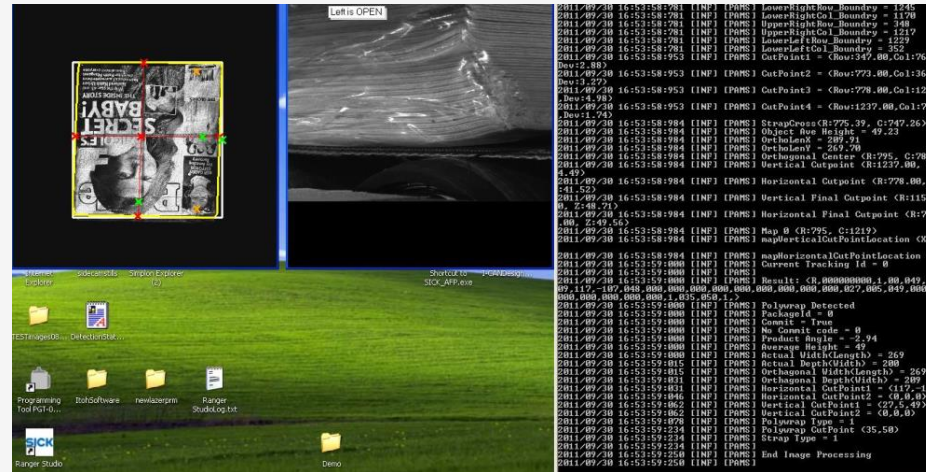

Supporting Mix Mail Sorters

Primary Loop Sorters

Our control guide robots to cut strap: One stop 3D_Imaging and processing for advance robotics

❑ Our proprietary Multi spectral 3D imager integrated to our motion control architecture

  ➢ Locate the position on a surface
  ➢ Measure the CG
  ➢ Use CG info for accurate targeting system
  ➢ Use Laser based ranging solutions
  ➢ Locate defects
  ➢ Locate straps and guide robot to cut

PDS improve the sorting accurecy! 3D imaging by advanced laser technology deployed in US Postal service

Project execution: A Farm with outstanding expertise

It is understood that to execute a complex engineering project client need a qualified design firm capable of integrating a complete solutions. The individual engineers in the firm have previous experience in designing large system for the US Government, Amazon and eCommerce industries in USA.

❑ Things we do
  ➢ Case studies
  ➢ Infrastructure layout recommendation
  ➢ Project management
  ➢ Selection of appropriate technologies
  ➢ Produce SOW
  ➢ Mechanical System calculation
  ➢ Mechanical interface design
  ➢ Electrical interface design
  ➢ Control interface design
  ➢ Software interface design
  ➢ Software protocol development
  ➢ Quality implementation
  ➢ Acceptance test
  ➢ Implementation of ECR
  ➢ Web interface design
  ➢ Produce Training documents
  ➢ Train employees

Our team in USA, We think outside the box !

More questions about this presentation?

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http://aclusterllc.com

Thank you for your attention

ACluster
LLC