I 1.03 - Automated Milk Run Ordering System

TEXAS STATE UNIVERSITY ®
The rising STAR of Texas

vitesco TECHNOLOGIES

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Problem Statement

- Current Process is Manual
  - Before every milk run, drivers must;
    - Observe material requirements
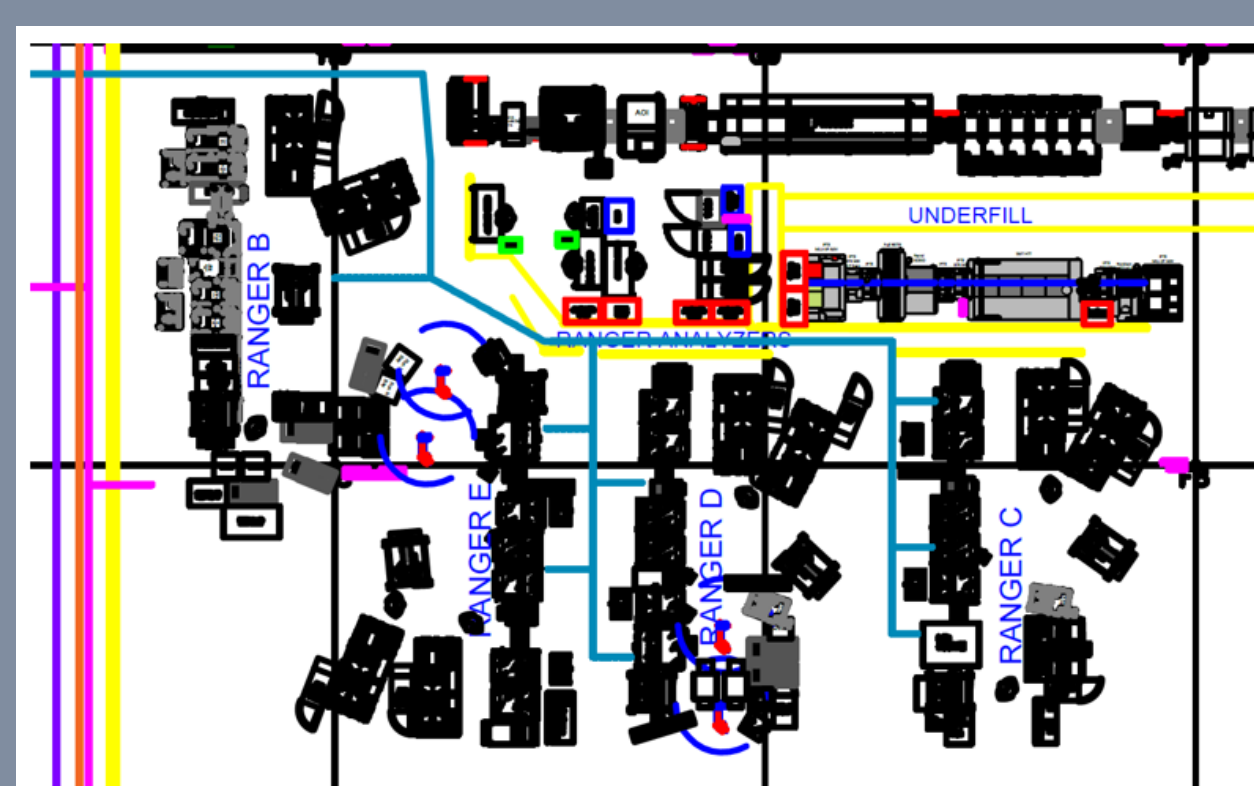   - De-trash
    - Load carts

Project Purpose

- Increase Plant Efficiency
- Decrease Production Floor Clutter
- Reevaluate Material Flow

Objectives

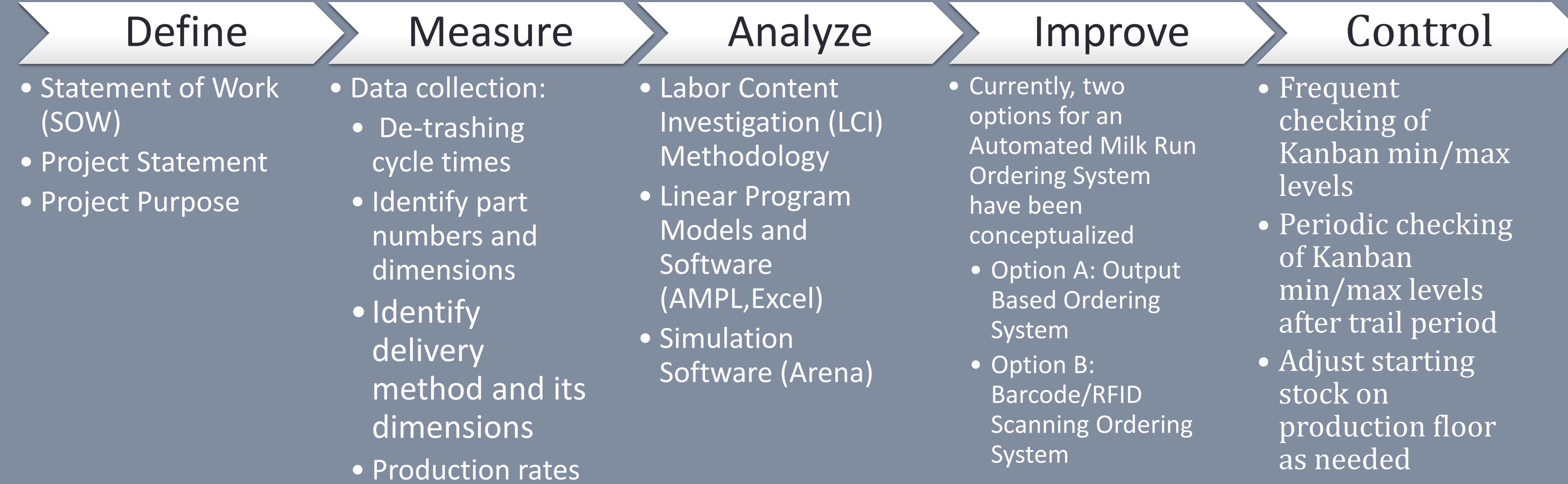| Product Functions:	Design Specifications (Performance Targets)
Cycle Time Data	Material Consumption, Milk Run Routes, De-Trashing
Material Flow map	Existing Drop Locations, Material Transports, Milk Run Routes
Data Analysis	Automatable Parts Determination, Kanban Levels, Efficiency of Process', Safety, Cost Savings
Design (Stretch)	Warehouse Re-Design, Milk Run Rerouting, Production Floor Re-Design

Current Layout

Facility Ranger Layout

De-trashing

Milk Run

Design Approach

Define	Measure	Analyze	Improve	Control
• Statement of Work (SOW) • Project Statement • Project Purpose	• Data collection: • De-trashing cycle times • Identify part numbers and dimensions • Identify delivery method and its dimensions • Production rates	• Labor Content Investigation (LCI) Methodology • Linear Program Models and Software (AMPL,Excel) • Simulation Software (Arena)	• Currently, two options for an Automated Milk Run Ordering System have been conceptualized • Option A: Output Based Ordering System • Option B: Barcode/RFID Scanning Ordering System	• Frequent checking of Kanban min/max levels • Periodic checking of Kanban min/max levels after trail period • Adjust starting stock on production floor as needed

Measure Phase

Ranger Line B				
	Part Numbers			
GPEC Model	Housing	Lid	Connector	Lytic
2A	A2C7331280000	A2C7331290300	Tan: A2C7347840200 Gray: A2C7449700100	N/A
4	A2C743070000	A2C7565140000	A2C7420100000	A2C5339442500
Delivery Method	ST40 Tote	magrack	milkrun material carts	trays via push cart/stockchaser
Delivery Method Dimensions	15inx23.75inX11in outter 13.25inX21.75inX10.5in inner	holds 8 mags, 10 lids each 57.5inx24.5inx27.5in	30inx31.75in outter 27.5inx19inx28.5in inner	
Stored Location	stockroom prep area	Stockroom	Stockroom	Stockroom
Drop Location	refer to map layout	refer to map layout	refer to map layout	refer to map layout

Part numbers, location, delivery method and their dimensions.
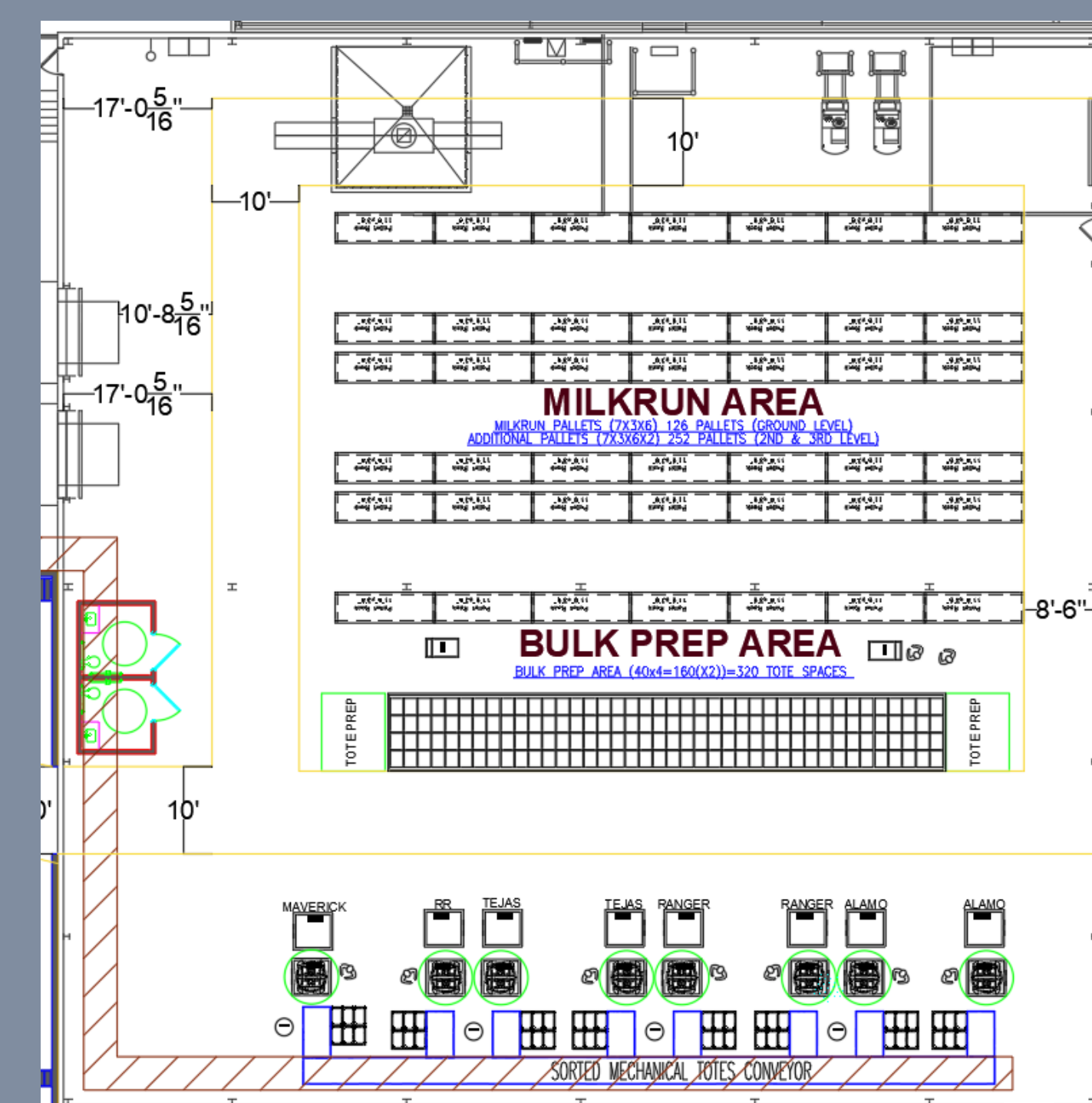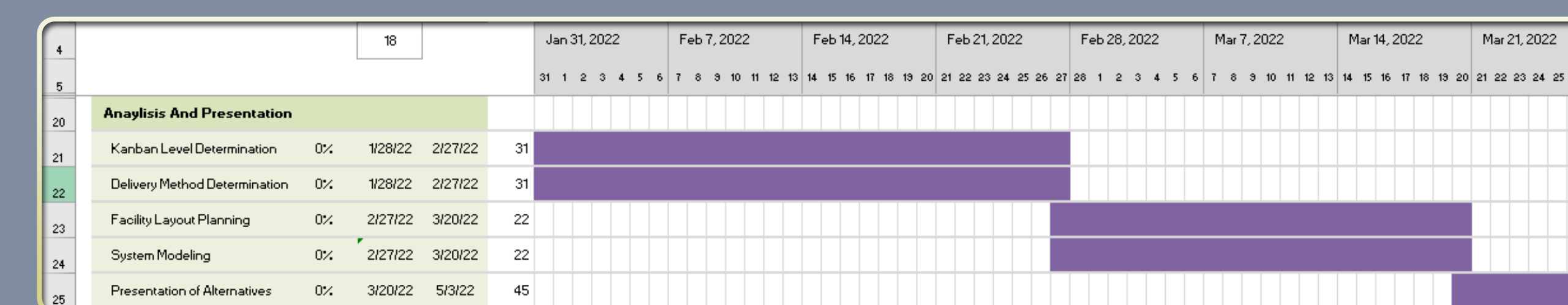

Housing

Lid

Rack

ST40 Tote

Future Plans

Vitesco Technologies Future Warehouse Layout

Spring Semester Milestones

- Continue to gather data
- Analyze data to find appropriate min/max Kanban levels
- Create simulations of improved ordering system
- Improve milk run routes and drop locations

Evaluation Criteria

Objectives	Relative Weight	Metric	Actual Results	Score	Wt. Score
1. Bulk Prep Kanban	0.70	Pass: Identify material/part numbers that can be delivered in totes, cycle time to de-trash and store in totes, determine min and max and quantity of each part/tote. Fail: Data incomplete for Ranger line E; no recommendations for bulk prep Kanban.	TBD	TBD	TBD
2. Automated Milk Run Routes	0.30	Pass: Map routes, determine drop locations, identify part numbers for each route and determine how material is presented to line. Analyze data and recommend automation for Just-in-Time delivery of materials. Fail: Data incomplete; no recommendations for Just-in-Time delivery of materials.	TBD	TBD	TBD

– Evaluation Methods and Acceptance Criteria & Metrics

Analyze Phase

All data collected will be analyzed using available software from Texas State University and Vitesco Technologies.

Labor Content Investigation (LCI) Methodology

Linear Program Models and Software (AMPL, Excel)

Simulation Software (Arena)

Team Members

From Left to Right
- Brandon Willis
- Eric Brady
- Rosa Rodriguez
- BJ Iroha

Sponsor / Faculty

Sponsor: Katie Esparza

Instructor: Dr. Michelle Londa