System Requirement Specification (SRS) - Company B

Date of hand-in: 2020-03-04
Nr. of character: 8401

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Revision

Date	Author	Version	Change Description
27-02-2020	MM, ND, MA	0.1	Created the document and added initial requirements draft
27-02-2020	OR	0.2	Added Scope, Referenced Documents, Quality Provisions, Requirements Traceability.
01-03-2020	MA	0.3	Changed to requirement, based on comments. Added group members table and changed front page.
04-03-2020	Company B	1.0	First version of the document
14-03-2020	MM, ND	1.1	Added categories to the requirements based on Beidis feedback

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1. Scope

1.1 Identification.

Baggage Handling Upgrade to the system delivery for the client "A Larger airport". The extension revolves around adding Level 3 X-Ray Screening to the existing system design [1].

1.2 System overview

The purpose of the system is to extend an existing baggage handling system with an "Ultimate Control Security Screening station" and two additional screening machines. To enable the client to somewhat automate the screening incoming baggage and while still allowing for manual inspecting when anomalies are found. Mainly SRS evaluation criteria can be summarized as the following:

- All requirements are categorized.
- All requirements are traceable. (Each requirement is a clear, identifiable statement).
- All requirements are verifiable.

1.3 Document overview

This purpose of this document is to identify and categories the system requirements for the Baggage Handling Upgrade. It covers the functional and non-functional requirements and the qualification methods used. The structure of the document is based on the template in [2]

2. Referenced documents

[1] BEUMER GROUP, 2018, Baggage Handling Upgrade Case Description

[2] Rune Hylsberg Jacobsen and Stafan Hallerstede, 2020, SYSENG1-10-003, Case book

[3]www.sebokwiki.org/wiki/System_Requirements#Traceability_and_the_Assignment_of_System_Requirements_during_Architecture_and_Design

[4] https://europa.eu/european-union/eu-law/legal-acts_en

3. Requirements

The section on system requirement can be organised into a number of subsections. Both functional and non-functional requirements shall be included. Each requirement shall be assigned a project-unique identifier to support testing and traceability.

3.1 Required states and modes.

This paragraph specifies requirements regarding states and modes the system will operate within.

ID	Description	Quality and provisions	Type
Requirement 1	Regardless of mechanical errors, operational faults, etc. no baggage must be able to go through the area without having been security approved.	Demonstration	Mandatory
Requirement 5	Baggage can manually be removed from the system through one Offset workstation (First in the blue circle, see figure 1). Afterwards they can manually be transported to the search room Ultimate Control Area (red area, see figure 2) to complete the security process.	Test	Mandatory
Requirement 7	Baggage rejected or with no result at first screening (prior to the extension) must be routed to Additional Screening Area (green circle, see figure 1)..	Inspection	Mandatory
Requirement 8	Baggage checked in the additional screening machine, must wait for the final result from the operator of the Level 3 X-Ray Screening.	Demonstration	Mandatory
Requirement 9	It shall be possible to manually load cleared baggage back to the system at the manual handling areas.	Test	Mandatory

3.2 System capability requirements

This paragraph specifies requirements on the behaviour of the system and shall include applicable relevant parameters. It shall be divided further into subparagraphs depending on the system capability in question.

ID	Description	Quality and provisions	Type
Requirement 2	Baggage, from the point of entry (Yellow circle see figure 1), to the point of additional screening (Green circle, see figure 1), there must pass at least 70 seconds to allow for manual inspection of a previous taken x-ray image.	Test	Mandatory
Requirement 3	From passing additional screening (Green circle in figure 1) until reaching the entry point of manual inspection (The red lines), at least 30 seconds must pass.	Analyse	Mandatory

3.3 System external interface requirements

This paragraphs shall be divided into subparagraphs to specify the requirements, if any, for the system's external interfaces. Interfaces shall be assigned a project-unique identifier. One or more interface diagrams shall be provided.

ID	Description	Quality and provisions	Type
Requirement 4	The unsecure baggage in the CrisBag totes [1] are conveyed through two additional screening machines. The machines are foreseen to be of type SecureScreen RX 5001[1]. (The machines are not included in this supply), but a software interface must be made.	Inspection	Mandatory

3.4 Safety requirements

System requirements concerning minimising unintended hazards to personnel, property and the physical environment.

ID	Description	Quality and provisions	Type
Requirement 12	Baggage rejected after the additional screening (green circle, see figure 1) has to be safely manually moved by airport personnel to the search office (yellow area on figure 2).	Demonstration	Mandatory

3.5 Design and construction constraints

This paragraph specifies the requirements, if any, that constrain the design and construction of the system.

ID	Description	Quality and provisions	Type
Requirement 6	Space constraints for the ultimate control area are listed below. Specified areas are as per below: ● Search office: 15m² (6m x 2.5m) ● Destruction area: 10m² (5m x 2m, with free high 3m) See figure 2 for space constraints area diagram	Analyse	Mandatory
Requirement 10	It must not be possible to send non-empty totes on the transport section in the manually handling area, between the offloading of the bags and the onloading of the bags.	Analyse	Mandatory
Requirement 11	Secure baggage is re-introduced to the system through one dedicated workstation(blue circle, see figure 1).	Inspection	Mandatory
Requirement 14	In regard to requirement 8. - Rejected baggage are sorted to the manual handling area (blue circle, see figure 1) for inspection. - Cleared baggage are sorted to their planned destination.	Demonstration	Mandatory

3.6 Personnel-related requirements

This paragraph specifies the requirements, if any, included to accommodate the number, skill levels, duty cycles, training needs, or other information about the personnel who will use or support the system.

ID	Description	Quality and provisions	Type
Requirement 13	Reintroduced baggage is manually loaded onto an empty tote. The baggage and tote are associated by using a hand-held scanner or keyboard.	Demonstration	Mandatory

3.7 Logistics-related requirements

This paragraph specifies the requirements, if any, concerned with logistics considerations.

ID	Description	Quality and provisions	Type
Requirement 15	The system must be operational starting September 1st 2020.	Demonstration	Mandatory
Requirement 16	The system must be ready for public use on January 1st 2021.	Demonstration	Mandatory

3.8 Other requirements

Examples include requirements for system documentation not covered in other contractual documents.

ID	Description	Quality and provisions	Type
Requirement 17	All components must comply to European regulations for industrial electrical components [4].	Demonstration	Mandatory

4. Quality provisions

The purpose of the quality provisions is to define a set of qualification methods for each requirement. Requirements R1 to R17, will be verified using the following qualification methods in Table 1.

Table 1 - Quality provisions table

Requirement	Qualification Method
R1	Demonstration
R2	Test
R3	Analysis
R4	Inspection
R5	Test
R6	Analysis
R7	Inspection
R8	Demonstration
R9	Test
R10	Analysis
R11	Inspection
R12	Demonstration
R13	Demonstration
R14	Demonstration
R15	Demonstration
R16	Demonstration
R17	Demonstration

5. Requirements traceability

Requirements traceability provides the tracking of information from the stakeholder requirements to the highest level of requirements and other system and subsystem definition elements at all levels of the system hierarchy [3]. All system requirements allocated to the subsystem shall be considered. System requirements are traceable to user needs through the following traceability matrix demo below.

Table 2 - Demo of traceability matrix

Project name:	Baggage Handling Upgrade	Business Area:					
Project Manager:		Business Analysis lead:					
QA lead:		Target implementation date:	January 1. 2021				
Req id.	**Category or functional activity**	**Use case reference**	**Design document reference**	**Code or module reference**	**Test case reference**	**User acceptance validation**	**Comments**
R1	Security Check	N/A					
R2	Flow Management	N/A					

6. Other

General information that aids in understanding this document e.g,. background information, glossary etc. is included here.
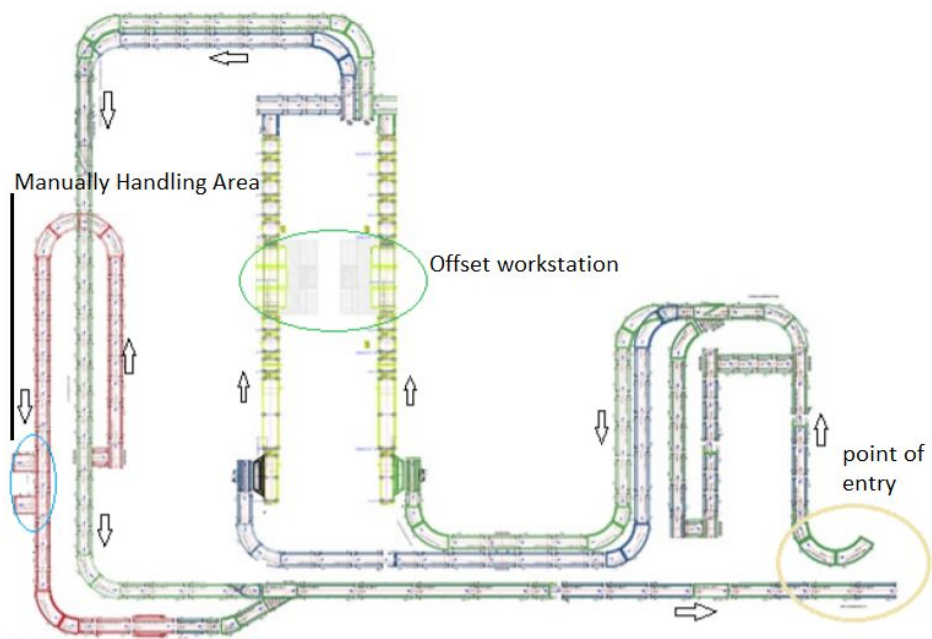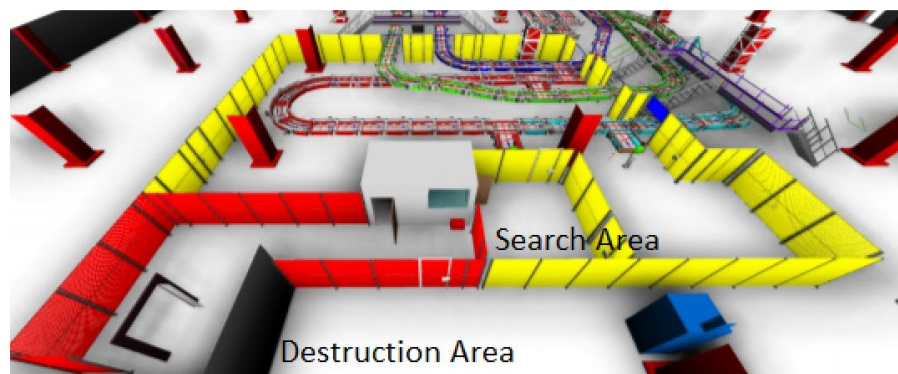
Figure: 1 Layout of extension

Figure: 2 Space constraints in ultimate control area