

University of Hull

Smart Delivery Board

2025

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Honours Stage Project

Project Definition Document

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# Project background & purpose

## Introduction

The production of wind turbine blades at Siemens Gamesa Factory in Hull is a complex process that involves multiple phases and teams. Tracking the progress of each blade as it moves through production is crucial for meeting delivery deadlines and maintaining quality standards. Currently the factory relies on manual data entry across multiple sources to track production progress. This can often result in reduced transparency, leading to miscommunications between teams and delays in responding to issues.

The project proposes the development of a smart delivery dashboard which relies on a manufacturing execution system (MES) as a single source of truth for the production status of blades in real-time. By presenting key milestones on a more granular level and reducing time spent on manual data entry tasks, the system will support teams and management in improving both efficiency and coordination.

## Objectives

### Primary objective – Design and implement backend data integration for the smart delivery dashboard

**SPECIFIC**

Create a centralised system that collates the current production phase and status of all blades at Siemens Gamesa Hull Blade Factory by retrieving data directly from the factory’s MES

**MEASURABLE**

The system must capture the entire production cycle of each blade and update the current phase automatically as frequently as the MES can supply data.

**ACHIEVABLE**

While the MES will only become available part way through the project the scope is still achievable by initially using test data. The system will be designed as to ensure compatibility with the MES once the system is live and the API endpoints become available.

**RELEVANT**

The system addresses the need to reduce multiple data inputs across different systems by integrating directly with the MES. This will minimise manual data entry, lowering the risk of errors and free up man hours for production related tasks.

**TIME BOUND**

Deliver a fully operational software system that is integrated with the factory’s MES by 30th of April 2026.

### primary objective – Develop a USER-FRIENDLY smart delivery dashboard interface

**SPECIFIC**

Design and implement a front-end interface that visualises the collated data from the MES. The interface must present each production phase or a blade in a way that is easy to interpret by both shop floor operatives and management.

**MEASURABLE**

The dashboard must display at least 3 production metrics for each blade. For active phases, it must show the phase name, elapsed time, and estimated completion time. For completed phases it must show the phase name and the total phase duration.

**ACHIEVABLE**

Simulated data can be used for the initial development of the front-end ensuring that the interface is functional once the live MES data becomes accessible.

**RELEVANT**

The system addresses the need for improved visibility of blade production, supporting decision making, reducing production related delays, and ensuring stakeholders remain aligned with expected delivery times.

**TIME BOUND**

Deliver a fully operational front-end interface that is integrated with the factory’s MES by 30th of April 2026.

## Scope

## Deliverables

## Constraints

## Assumptions