CSE 435 - Team 6 - Requirements Definition

Authors: Stephen Alfa, Logan Arent, Colin Coppersmith, Sean Joseph, James Murray

1. General Purpose:

   The general purpose of this system is to provide a better way for analysts to input paint defects during the assembly process. The system will automatically generate reports of defects, and save time for the analysts, and paper.

   Scope:

   The scope of the project is to create a system to replace the current paper-based process of recording paint defects and make creating reports on the defects a trivial task. Benefits: The system will eliminate the need for paper records and save analysts a lot of the time previously required to generate reports.

   Objectives and Goals:

   a. Implement a way for analysts to record the defects of a vehicle, including type, location, and severity information.
   b. Allow editing of data after it has been entered.
   c. Allow analysts to easily create daily, weekly, and monthly reports as well as reports including a custom set of vehicles over a custom time period.
   d. Support the analysis of paint defects over time.
   e. Ensure the security of the system by requiring user verification.

2. Related systems:

   The assembly process includes checkpoints at which the analyst examines vehicles for defects. These checkpoints are at established points in the assembly line, for instance after a primer coat of paint and after polishing.

   The plant displays daily reports of paint defects and supervisors view it.

3. Terms:

   a. Vehicle Model: Diagram of the types of cars that will be involved in our system. The models will be different for each vehicle model (including GMC Acadia, Chevrolet Traverse, and Buick Enclave), and for each different vehicle, the vehicle model will include a right vertical view, left vertical view, and roof outline.
   b. Analyst: User for the system, interacts with the system by marking on the vehicle models where the paint defects are, the type of the defect, and the severity of these defects.
   c. Data: Values to be input into the system that enables it to be able to generate a report, such as location, type, and severity of the defect, or number of cars, etc.
   d. Report: The diagram of the vehicle model displayed with defects that is outputted based on the data provided. Includes a defect type legend, the analyst's name, date, and other important information, and may be generated based on time period. Can be at different checkpoints in the assembly line as well, such as Prime Review, Polish Deck, etc.
   e. Abbreviations: Automotive Paint Defect (APD), Defects Per Unit (DPU)

CSE 435 - Team 6 - Requirements Definition

Authors: Stephen Alfa, Logan Arent, Colin Coppersmith, Sean Joseph, James Murray

4. Background and Motivation:

   The current system that is in place is one that requires the analyst to physically mark where each paint defect is on a paper diagram with different colors, and indicate the severity of the paper as well. Then, for whatever reports are required to be compiled such as daily, weekly, or monthly reports,the analyst has to do all compilations by hand. These may be adding what types of errors and their severities for hundreds of reports. This process can be ineffective, inefficient, and inaccurate. This system allows for human error and inaccurate reporting, which could otherwise be prevented.

   The proposed system will get rid of all errors made in the compilation process by automating the creation of these reports. The major idea of the proposed system is to eliminate the paper waste needed by marking hundreds and hundreds of sheets across multiple analysts across multiple plants. The system will also save time by automatically compiling the reports, thus limiting the amount of extra work needed in the process. This system will save time, paper, and as a good consequence, money.

5. Essential Characteristics:

   The system will allow the user to quickly and easily record defects and associated data with colored markings. It will also have a way to edit previously entered data. The system will require a user entering data to specify which plant it is associated with. The system must make it easy for analysts to generate reports.

6. Environment:

   This system will be used on assembly lines to log paint defects on newly constructed vehicles. It will also be used in offices to generate reports for detecting trends in severity, type, and location of paint defects.