Sheet Week2-Summary

SUBMIT THIS SHEET AS PDF FOR PROJECT ASSIGNMENT

Navigation
To Title Page
To Week 2 Instructions

Step 1

Problem: **What is the best Electronic Powered Steering (EPS) system for a mid-size vehicle that meets performance and cost requirements? The idea is to find the most optimal EPS system that will result in low steering efforts for the operator, low weight to improve fuel efficiency, and at the same time be low cost.**

Project Name: **Electronic Powered Steering (EPS) System**

Step 2

Key DM: **Owner is the key decision maker for this system**

who wants **Find the best method to rotate the vehicle wheels (based on an user input) by meeting performance and cost estimates.**

Step 3

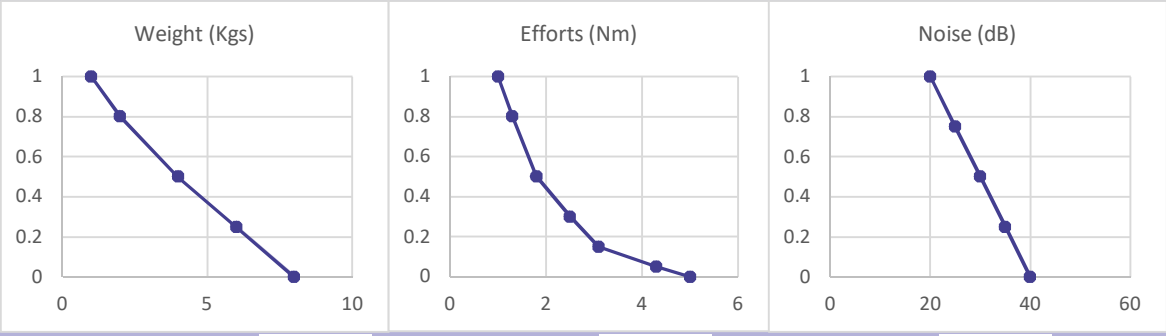
Objectives: **Maximize Customer Satisfaction**

Attributes: **Efforts, On-center Feel, Weight, Vibrations, Noise, Cost**

Number of performance attributes: **3** (should be exactly 3)

Number of cost attributes: **1** (should be exactly 1)

Attribute Name	*min*	*max*	*Preferred direction*	*Attribute Definition*
Weight (Kgs)	***1***	***8***	***smaller is better***	***Total weight of the EPS system***
Efforts (Nm)	***1***	***5***	***smaller is better***	***Amount of torque required by the operator when using the system***
Noise (dB)	***20***	***40***	***smaller is better***	***Level of noise heard by the operator when using the system***
Piece Cost ($M)				



Wt1: **0.25** Wt2: **0.6** Wt3: **0.15**

Sum of weights that matter: **1** (should be exactly 1)

Sum of weights as defined: **1** (should be exactly 1)

Step 4 Number of test cases run: **8** (should be greater than 0, up to 8)

Observation on value model:

The MAU scores corresponds to what it's required in terms of performance from the system. They results make sense since we can check for the extreme cases where on the best of cases (low weight, low efforts, and lowe noise) our result is a fantastic 1. On the other hand for the opposite case (high weight, effort, and noise) our results is 0. Although these results are unlikely, we can see that the trend of lower values in the parameters result in better values of MAU scores.

(should not be 0)

Step 5 ***Summarize***

Write up a short summary of activities performed this week, highlighting assumptions made, difficulties encountered, and how you might do this differently given more time, data, or other resources

The above scheme was made to find the optimal EPS system for a mid-size vehicle. One of the main assumptions at this initial state is that a mid-size vehicle means either a sedan or SUV. Also, there is an inherit assumption that loads and other interacting systems (suspension, mounting points, etc.) remain the same regardless of the EPS system chosen.

It is important for the reader to understand that this scheme was simplified. Currently only 3 attributes where chosen but in reality there a more attributes that contribute to choosing the system. It is important to note that the attributes chosen here are required to be lower for the score to be better; however, this is not the case on other parameters and additional data is required to find the appropriate SAU curves for the missing attributes.