

DirtSlurper3100

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Abstract

1 Introduction

DirtSlurper3100 is a state-of-the-art robotic vacuum cleaner manufactured by a fictitious company named IButler. The company offers a 5-year warranty period for all of its products, during which the vacuum cleaner can be brought in for repairs free of charge, provided the damage is due to normal wear and tear and was not intentionally caused.

Three components will be investigated: the battery that powers the device, the IR sensor that maps the environment, and the impact sensor, which allows the robot to bump into objects in the environment. Since all three components need to be in good shape for the vacuum cleaner to work, in case one of them fails, the robot will need to be sent in for repairs.

In this report we will assess the lifetime of the three vital components of the DirtSlurper3100. maybe mention a bit about what we'll have in the methodology?

2 Data

The original dataset consists of 6473 entries. The first column in the dataset notes the date of registration of the vacuum. This date represents the day the appliance was supplied to its user. The total usage time contains information about how much the robot cleaner was used before one of its components broke down. The dataset also contains information about whether the household of the registered vacuum cleaner has any pets. This variable is binary and denoted with either "YES" or "NO". Additionally, a carpet score is also given using numbers 1 through 9. A low value means there is little area carpeted, whereas a higher value means there is more floor area that is carpeted. There is another binary variable that states whether the product was

sent in for repairs or not. For each product that has been sent for repair, the date for this event is also mentioned in the column "Sent for repair". If a robot was not sent for repair, it will have this column marked as "-". Finally, there is a column for each part that is important for the vacuum cleaner: battery status, impact status, and IR status. For each entry in which the DirtCleaner3100 is sent for repair will have either "OK" or "Damage" for each part, depending on the assessment for each one of them. In case the product was not sent for repair, all three columns will be marked with "-" as well.

The data contains all products that have been registered from the 1st of January 2015 up to and including the 31st of December 2019. The data is cut off at the latter date, so the dataset is right-censored.

Add information about all we did to the dataset-> change values to NA, deleted rows, added columns etc

3 Methodology and Modeling Assumptions

3.1 Kaplan-Meier

4 Results and Recommendations

4.1 Kaplan-Meier

5 Conclusion

References