Scrap Metal Price Detector for Recycling Shops and local Recyclers

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Abstract

In this report , I do propose the idea of using the machine learning and data science for the purpose of improving the efficiency of the Scrap metal dealers and the local Recycling vendors and to do the trade in terms of the real time value of the metals.

In this project I have come up with a idea of making the recycling industry of India more efficient and the people to trade the scrap for recycling at a better price . This industry's is about the size of 11 Billion Dollars (~ 88 Thousand Crores) in India and mostly consisting of unorganised players .
So our main motive is to organise the sector and making the scrap collection more effective .

1 . Problem Statement

Application of Machine learning and building efficient models for the Scrap collectors and traders to use the work force efficiently for the scrap collection and trading . So to solve the problems of the unorganised sector more efficient , I am going to propose a machine learning model that is going to detect the work force division and most profitable area to collect the scrap and the best price we can sell our segregated scrap for a best price , that is going to be profitable for both

trader and collectors. So we are going to dated the alloys and going to give them the best price for their goods.

A regular Day to day Scrap dealer

2. Market/Customer/Business need Assessment

As the population of India is growing at a vast scale so is the piles of waste and electronics that are being produced by the people. So Huge MNC's like Apple , Microsoft … are also using the recycling materials in their products to get a larger reach and tax benefits for their usage of recycled materials . In India most of the scrap vendors don't organise their scrap while trading and that is where they do not get paid enough due to their incompetence of separation and selling . And we are going to help them with the required models to sell their scrap at a good price and the ability to choose the vendors (choose the better price vendors) .

3. Target Specification

Our targeted customers are the day to day local vendors who make their living out of selling scrap to the large merchants and often get betrayed of the

goods they sell to the merchant/vendor . Who don't have a proper education and come to the scrap recycling business to earn a living out of it, They don't have a idea of what price the scrap is being sold in the market, the only price they are gonna get is the price their dealer gives . So this is where we come in and help them to get a good price for their scrap (Ex : 1kg of a precious/in-demand alloy is going to get him (scrap collector) is going him to get same as that of what he gets for the remaining scrap, but with the help of our model he can get the real-world price for his metals.)

4. External Search

Most of the Scrap dealers are from poor backgrounds who just want to make their ends meet out of scrap recycling , So the market is huge in India and if we make out model a bit more affordable for the scrap sellers to identify their real values of their scrap and make their margins out of it . Currently no such model exits for the purpose of detecting the price for the alloys of the scrap metals , even if the model exists it only is being accessed by large scrap recycling factories for which the common man don't have access to.

5. Business Opportunity

There is a lot of space for all in this 11 billion dollar industry and making some space for the roots of the industry the scrap collectors does only strengthen the roots and it makes them financially more stable and motivates the new generation to join them .

As we have already seen how less the margins are for the small scale scrap dealers , so any business model that we come up should be sustainable for both us and the user , what I came up with is a model that is affordable by the user.

Rather than charging the user a monthly or a annual subscription for using our model we are gonna charge them on a (pay as you go) model where the user can pay only for the number of times he uses our model alone with a annual subscriptions . It is a win-win situation for both the user and us because once of the user likes out model after basic model if he does like our model then he would go with our annual subscription (customer acquisition at no cash burn).

6. Final Product Prototype

So our final product prototype would be a application for a android for the initial phase as most of our customer base is a majority android users . In which the user can access to our Machine Learning model that is basically trained and regularly updated on the alloys and their prices that are being traded and our model guides them for the profitable price for them to buy the scrap or sell the scrap .

These are the following observations that can be down with our model for the purpose of improving the efficiency of our model for better accuracy of pricing and some of them would be

- The average price of the goods being bought or sold by the vendor depending on the scrap price he is going to estimate for.
- We could get the list of users that are not able to predict their produce price due to lack of data on the alloy composition and make the model more trained on data that is being specifically looked up by the user .
- We could get the most searched alloy scrap composition that the users are searching for and train our model more on that data , for targeting the larger section of users and a high accuracy .
- We also do suggest the user on what is the most trading material or alloys of scrap that most of the sellers are searching for and in demand of and we recommend him to collect the valuable scrap .

Updating our model week by week depending on the global market so that we keep our model more adaptable for the real world conditions and not outdated. As that doesn't make sense as the scrap business is a day to day trading business and users need to get daily updates on the pricing .

7. Conclusion

In the initial phase of me searching for a particular area for application of machine learning in real world, I have thought of large scale only but when I was suddenly thinking of why not apply the machine learning on then completely isolated industry of small scale scrap dealers from technology.

I have done a research on what you can do to impact a change that may be of a small scale at the beginning but can revolutionise the industry. So I have planned to modernise the way of trading the scrap that was being traded in the same way for years, i.e only depending on the weight of scrap. Now you can precisely find out price of there scrap with the composition and the real value in the market. We don't have to restrict ourself to the metal market but also expand to the plastic

market where the classification of plastic is important for recycling. And it goes……

Types of plastic needed for classification for recycling