Waste Reusing and Recycling Implementation Using Opencv and Dnn

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ABSTRACT: The world generates at least 3.5 million tons of waste per day and this is still increasing day by day one of the main cause is because of continuous urbanization so to create awareness in the society that , this application is being developed to classify various types of waste materials and suggest reusing and recycling ideas and step wise process to implement a useful item from that specific waste from the image , with the help of this web application a person can simply implement a useful item from the procedure provided in the web interface.

A deep Neural Network is trained on 12000+ images and classified data of around classes of images using Residual Networks architecture with a depth of 152 layers deep which is 8x deeper than VGG networks,This was achieved through a python library OpenCv to identify objects The algorithm classifies image and provides data for respective type of object .

INTRODUCTION

The municipal solid waste increasing annually, with at least 33 percentof that extremely conservatively not managed in an environmentally safe manner When looking forward,global waste is expected to grow to 3.40 billion tons by 2050 This is because of imperfect waste modulation it would not be possible to recycle any kind of waste, by waste management and organizedseparation it can be recycled and reused in an efficient manner to create awareness and make a hassle free squander handling for people and suggest ample ideas to reclaim or to reuse that specific waste or even tangled waste into a productive item This entire procedure can be implemented by identification of type of material by capturing the items as a picture and process the data to validate and provide suggestions and ideas for waste recycling and to extract or regenerate effectiveproducts.

LITERATURE SURVEY

"Do-It-YourselfRecommenderSystem: Reusing and Recycling withBlockchain andDeepLearning"bysacheypandey, DevanhiVarma,shubham rajrah,

In this project they used Deep learning technique to Recognize the object from various classes (RESNET 50) and used DNN to train the dataset and uses web scrapping technique to provide various Reusing ideas.

"An Internet of Things Based Smart Waste Management System Using LoRaAnd Tensorflow Deep Learning Model" by Teoh ji sheng, Mohammad shahidulislami, mohd.hafiz baharuddin, Md rashedul islam.In this project they implement the smart waste management system to monitor the status of the bin and used(SVM) to classifywaste into differentclasses such as glass, metal, paper, and

plastic.

"CompostNet: An Image Classifier for Meal Waste" by:Sarah Frost,Bryan Tor,Rakshit Agarwal, Angus G.Forbes In this project they recognized the three categories of waste aslandfill,recyclable, and compostable.Based upon the uploaded image the trained dataset give result in the form of above 3 categories as the waste can be reused as landfill,recyclable and compostable.

"An Automated Machine Learning Approach for Smart Waste Management System" by David Rutqvist, Denis Kleyko, and Fredrik Blomstedt In this Project they implemented the smart waste management using machine learning approach for industrial informatics.

Plastic.

EXISTING SYSTEM

In Existing methodology the waste classification and recommendation that provides ways to deal withthe waste objects.It works on a variety of daily use objects (12 classes) and recognizes the object in a given image and recommends ways to reuse the objects and they designed and deployed the novel smart contracts that help to verify the DIY recommendations. This was done through the Python library OpenCV, which uses the system's webcam to recognize the objects used 11,700 images collected from different sources to train the Image Recognition Model.The dataset contains images from ImageNet , TrashNet and a Kaggle Dataset also has the images with complex shapes and imagebackground they used Block chain which records every transaction in the shared ledger to enable transaction verifiability and supports better decision-making and a Deep Neural Network (DNN) trained on about 11700 images is developed using ResNet50 architecture for recognition of an object .They arrange different smart contracts in the Hyperledger Fabric (HF) blockchainplatform to verify the suggested DIY ideas by blockchain network members.

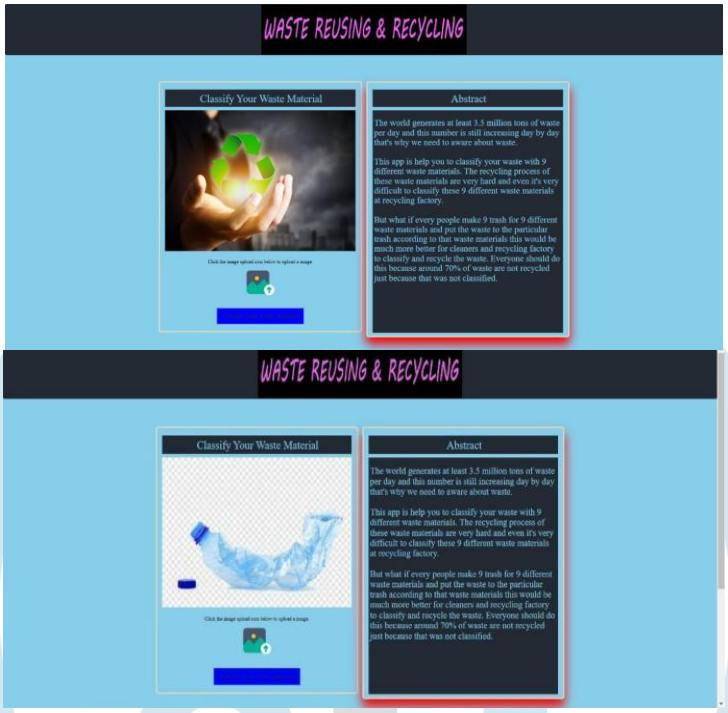
PROPOSED SYSTEM

"Waste Reusing and Recycling" not only save our limited resources, but they also save the environment from pollution due to lack of Urbanization waste increases day by day.To overcome or to make awareness on environment that this web application is being developed.This project is established through a OpenCv, deep neural network model and convolutional neural network which are comes under machine learning.This was achieved through a python library OpenCv which uses system webcam to recognize the object.Further a Deep Neural network model is trained on about 12000+ images is developed using ResNet152 architecture for object recognition and a Convolutional neural network model is to identify and classifies waste object from a

dataset.It works on a variety of daily use objects (14+ classes) and recognizes the object in a given image and recommends ideas for reusing the waste object.The main aim of this project is to identifying the waste object and classifying the type of waste material with the help of algorithms and provide the reusing and recycling ideas for the type of material to use the waste objects in an efficient way.The project is divided into six parts to brief the entire process of machine learning.

RESULTS

When we run the code an interface will be displayed to browse an image from the dataset and select an image to detect the helmet using the algorithms.



After uploading the image algorithm under go the process and classify the type of waste material and provide the Reusing and Recycling ideas for the type of material.

CONCLUSION

All over the world many fossil fuels and resources which are being used by people are heading toward lower levels and if this continues it may lead to scarcity of an ample number of resources To overcomeand prevent ourselves from this overhead situation we have come up with a deep neural network implementation to identify the type of waste item from an image and used Blockchain technology (Hyperledger Fabric) to suggest the user about the process of recycling or reusing ideas and also entire procedure to reclaim or rebuilt a productive item from the wastageand we have set ResNet152 of very deep layers neural network for training machine learning algorithm using 12000+ images subdivided from 14+ classes and also provided with multiple video explained procedures for implementing products by reclaimingwastage to maintain a high accuracy in testing data and avoid misclassifications during regression we have imported effective datasets with many classes of data of waste objects images. As the problem , increase in levels of wastage production is globally present we have covered the prototype handles any kind of data regarding this wastage domain and we hope this would be helpful for many organizations that are willing toprevent global warming such as “Greenpeace” “International NGO” etc to classify and find out if the item isfit for reusing or recycling.

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