E-WASTE MANAGEMENT SYSTEM

One of the major problems in all the countries across the globe is the e-waste which is otherwise called electronic waste. The Electrical and Electronic Equipment (EEE) is strongly linked to global economic development. Higher levels of disposable incomes, growing urbanization and mobility, and further industrialization in some parts of the world are leading to growing amounts of EEE. After its use, EEE is disposed of, generating a waste stream that contains hazardous and valuable materials. This waste stream is referred to as E-waste, or Waste Electrical and Electronic Equipment (WEEE).

Hear the idea is to collect and separate all the components from the motherboard which is working and not working one. Working components are used in another devices and not working components are used for recycling to get precious materials. Here we are taking motherboard components.

1. Purpose: Collecting the devices which are not used by the user
2. Separate all the components and categorized all(working and not working)
3. Working components are reused in other devices
4. Not working components & materials are send it to recycle
5. Extracting the precious materials from the components.

2. LITERATURE SURVEY:

Deep Learning is the process of analyzing data from different perspectives and   extracting  useful knowledge from it. It is the core of knowledge discovery process.

 Different data learning techniques include

● Convolutional Neural Networks

● Recurrent Neural Networks (RNNs)

● Generative Adversarial Networks

● Self-Organizing Maps

● Boltzmann Machines

● Deep Reinforcement Learning

● Autoencoders.

Convolution neural network is the most applied deep learning technique, which detects predictions based on image classification and uses object detection code to predict image through video analysis. Identifying type of componets and identifying the object based on images are particularly well suited to deep learning techniques. In CNN, training set is used to build the model as the Image data generator class which can classify the data items into its images into appropriate classes. A test set is used to validate the model.

2.1 Existing Problem

2.2 Proposed Solution:

Deep Learning (Convolutional Neural Networks):In vision of the problem statement described in the introduction section, a CNN model is proposed with boosted accuracy to AI Enabled E-Waste management Recogination System.The framework is composed of the following important phases:

Dataset Collection(creating training and testing folders)

Data Preprocessing Model Building

Achieving trained model with highest accuracy

Using trained model for prediction

Application Building

Classifications of the data sets are done on the basis of specific properties posses by the sample variable that the capable to classify them, and each sample variable is assigned a processor, processor pins, capacitors, dusty cooling fan,PLCC Chip,chip sets,sockets. Classification is principally done by making predictions based on known sample data that has been learned from training data. Designed algorithm is first trained on the known data labels and further uses this learning to predict the class labels for the new unknown set of data sample. The classification objective set for this study is to achieve enhanced accuracy by using Image data generator classifiers. We train the classifier with known sample data in a training dataset and check its performance by examining the test.

The Proposed work is to focus on the detection of working and not working components in the motherboard. Identification of components in images and Location of the component on the motherboard based on the position. Based on erosion followed by dilation segmentation algorithm. This algorithm can detect components and also classify it. Currently the algorithm is testing on six types of components.

THEORITICAL ANALYSIS

Data Collection

Import the Image Data Generator library

Configure images Data Generator class

Data pre-processing

Apply image Data Generator class to train and test set

Initializing the Model

Model building

Importing the model building libraries

Save the Model

Optimize the model

Adding CNN Layers

Loading the pre-processed data

Adding Dense Layers

Configure the learning Process

Train and Test the Model

application building with HTML and Flask

Software Designing

● Jupyter Notebook Environment

● Spyder Ide

● Deep Learning Algorithms

● Python (pandas, numpy,keras,tensorflow)

● HTML

● Flask

We developed this E-Waste management prediction by using the Python language which is a interpreted and high level programming language and using the Deep Learning algorithms. for coding we used the Jupyter Notebook environment of the Anaconda distributions and the Spyder, it is an integrated scientific programming in the Loading the prepocessed data Adding CNN Layers Configure the learning Process Adding Dense Layers Optimize the model Save the Model Train and Test the Model application building with HTML and Flask.

For creating an user interface for the prediction we used the Flask. It is a micro web framework written in Python and uses WSGI for web development. It is classified as a microframework because it does not require particular tools or libraries. It has no database abstraction layer, form validation, or any other components where pre-existing thir d-party libraries provide common functions, and a scripting language to create a webpage is HTML by creating the templates to use in the functions of the Flask and HTML.

FLOWCHART :

start

upload an image

Not Working category

Working category

Test

Reuse/extract

using deep learning(CNN)

Conclusion:

the convolution neural networks is used to predict the outcome based  on  image  and  video  analysis  by  giving  an  object  detection  code. the  neural networks using ImageDataGenerator class and feature detectors it predicts an  image whether it is a working or not working components I the motherboard.