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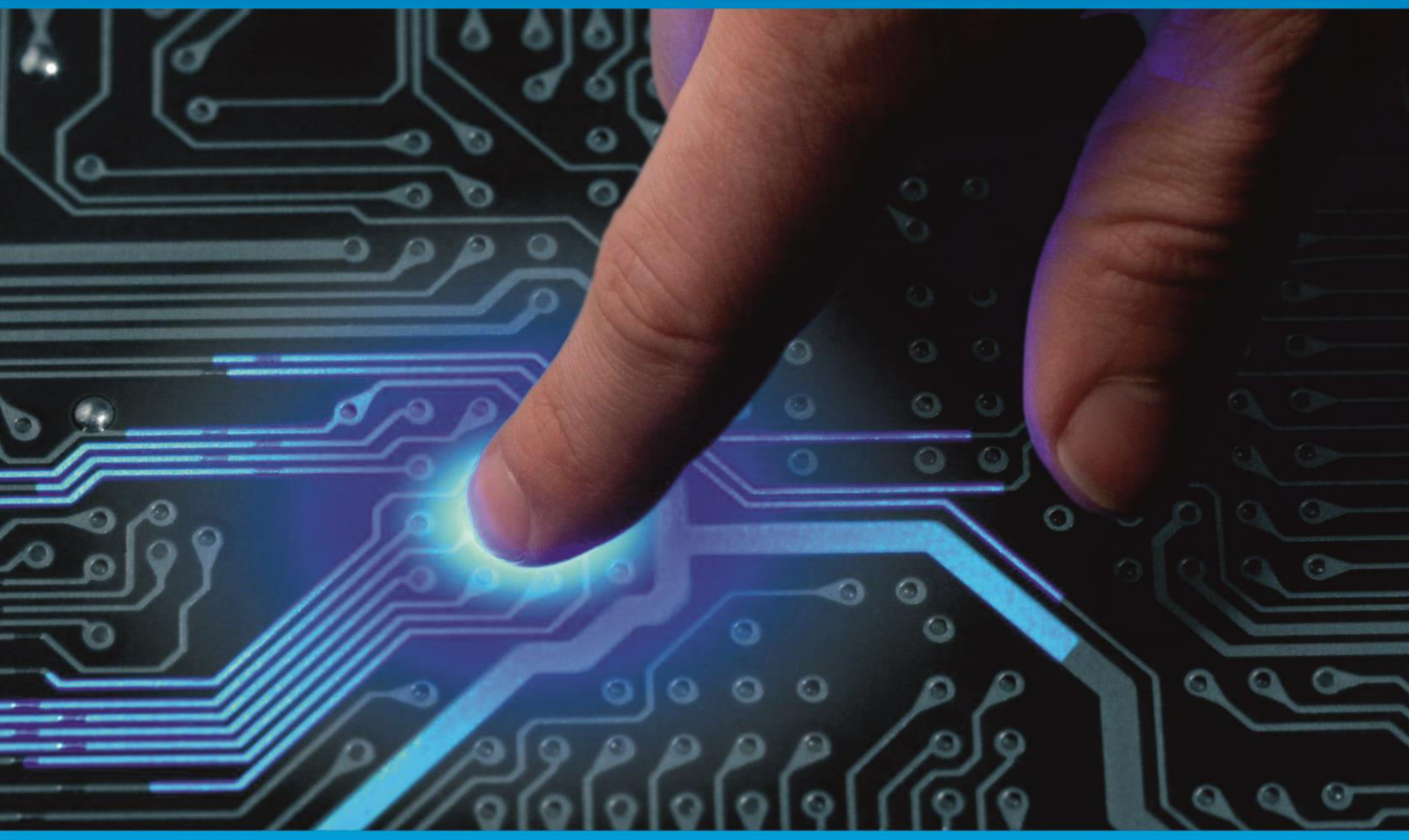

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Literature Survey on Classification of Alcoholic Structures Recognition System

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ABSTRACT: In this paper Svm classification method is used to determine 5 different alcoholic structures and also measure the reaction of different QCM sensors to 5 different alcohols and determine which type of sensor is more successful in the classification. Here we going to study the different classification methods and neural networks that have been developed in the last few years. Mainly focus on the evaluation of recently proposed work and neural network models. We then present the different models used and conclude the paper by proposing future research work

KEYWORDS: QCM sensors, Neural Network, Alcohol, compound classification, Svm classification

I. INTRODUCTION

Classification neural networks is a subfield of computer science artificial intelligence which focuses on developing the classification system .there are different classification methods Svm classification, logistic regression, naive Bayes classification, etc.

In this paper, we focus on the Svm classification method.The Svm classification used for the classification of alcoholic structures and also used to classify all QCM sensor data. The main focus of this paper is the study to measure the reaction of different QCM sensors to 5 different alcohols and to determine which type of sensor is more successful in the classification of 5 different types of alcohol structures. The 5 different type of alcohol structures are 1-octanol,1- propanol,2-butanol,2-propanol,and 1-isobutanol.

II. SVM CLASSIFIER

One of the best and simple Abstractive classifications is Svm classification model. Support Vector Machine (SVM) was first introduced by Boser Guyon, and Vapnik in 1992. Svm is a learning algorithm. classification problems are mainly solved by the Svm classification method.

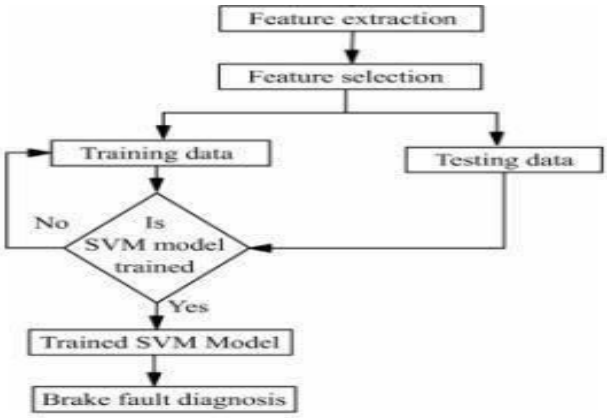

Fig 1.Svm classifier

2. QCM SENSORS

The quartz crystal microbalance (QCM) is a device used to measures small amounts of material.The result was obtained by using the frequency change of a quartz crystal resonator. frequency (reciprocal of time) is one of the

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most accurate physical quantities and also a quartz crystal can provide a very stable resonant frequency since the frequency of certain quartz crystal resonators are very sensitive to mass loading, therefore QCM is very suitable for measuring micro-grams or less of materials. different Qcm sensor structures are obtained using different Mip, Np ratios

Fig 2.QCM sensor

II. LITERATURE REVIEW

Ahmet Özmen, In this paper,the author introduced an array of eight Quartz Crystal Microbalance (QCM) sensor are used as a sensor system to measure the mixed gas attributes..signals from the sensors array in response to the gas mixture were proposed by a sliding window algorithm.we can get the valid data by sliding window algorithm .after that this data is used to train a 3 layer artificial neural network.3 different gas mixtures were analyzed in this study:

M.boutamine, In this paper,the author introduces the identification of volatile organic compounds (VOCs) using a combination of sensors followed by pattern recognition methods. four quartz crystal microbalances (QCMs) were coated by plasma to detect the volatile organic molecules . The sensor responses have been used as a database for principal component analysis (PCA) and artificial neural networks (ANNs) to identify the VOCs

M.Fatih Adak, In this paper, the author introduced the multivariate linear regression (MvLR) method used to determine the ratio of individual gasses in each binary gas mixtures .gas data are obtained through the QCM sensors. acetone, methanol, and chloroform are used to form binary gas mixtures . Nine quartz-crystal microbalance sensors are used in this study

Christopher A. Mills, In this paper,the author has proposed Complementary pairs of polymer-coated quartz crystal microbalance sensors and polymer/carbon black-coated micro-resistance sensors that have been used to produce a characteristic value for the odorants (*S*fr), related to the odorant molecular density. An application-specific integrated circuit (ASIC) is also controlling and collects data from the quartz crystal microbalance-based sensors,

*B.Mondal,*In this paper,the author introduces an Artificial neural network-based model for recognizing different concentrations of hydrogen, methane and, carbon monooxide. Classification of the gases at critical concentrations are done by Feed forward back propagation neural network..

Bekir Mumyakmaz , In this paper, the author introduced a QCM sensor array and a data processing system to find gas concentration ratios of ternary gas mixtures.Binary and ternary mixtures are applied to the sensor array, data is

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collected from the sensor responses. The ANNs are trained with 309 preprocessed data set using Levenberg – Marquardt training algorithm.

Nicholas C. Speller, In this paper ,author introduced a comparative study between traditional and alternative quartz crystal microbalance (QCM) . A traditional multisensor array (MSA) was compared to a recently introduced virtual sensor array (VSA) scheme and a new sensing scheme "virtual multisensor array (V-MSA) " developed by combining complementary MSA and VSA schemes

Andrea Bearzotti, In this paper, the author introduced A thin layer of pentacene onto quartz crystal microbalance has used for BTX detection. a quartz crystal microbalance (QCM) used for pollutant detection at room temperature.Volatile organic compounds (VOC) are one of the major air pollutants and the identification is done by Qcm sensors.

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N. Nimsuk, In this paper, the author introduced a method for enhancing the robustness of odor classification against the changes of humidity and temperature when the odor concentration is changing dynamically. In this paper author used learning vector quantization (LVQ) neural network.

Maria E.Escuderos, In this paper,the author introduced eight Quartz Crystal Microbalance (QCM) sensor arrays to differentiate the quality of olive oil samples. used Principal Component Analysis (PCA) method. Five gas chromatographic stationary phases were used as sensing films of QCM sensors

III. CONCLUSION

The growth of the neural network is increasing day by day. Chance in problem, So the best solution to solved is a strong classifier which produces better classification and enhances the quality.

In this paper, we emphasized various approaches for the classification of different materials. We already describe some of the methods that are used and algorithms. The paper provides a literature review of various research works in the field of classification. This research will explore existing systems and new techniques of classification processing and machine learning.

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Tensa Thomas is a PG student in Electronics and communication engineering, Government Engineering College, Idukki, KTU University, Kerala, India. I completed my Btech in Electronics and communication Engineering , Jyothi engineering college, Thrissur, Kerala, India. Research interests are NLP, Artificial intelligence , Machine learning etc.

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