
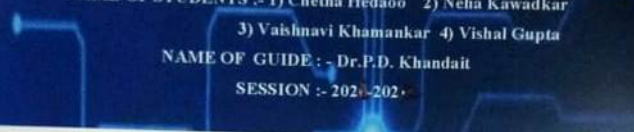



K. D. K. College of Engineering, Nagpur

Department of Electronics & Telecommunication Engineering

K.D.K COLLEGE OF ENGINEERING, NAGPUR
 DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING
TITLE OF PROJECT : "FACE MASK DETECTION USING PYTHON & TENSERFLOW"
 NAME OF STUDENTS :- 1) Chetna Hedao 2) Neha Kawadkar
 3) Vaishnavi Khamankar 4) Vishal Gupta
 NAME OF GUIDE :- Dr.P.D. Khandait
 SESSION :- 2020-2021







ABSTRACT: Corona Virus is a big threat to humanity. Now, the whole world is struggling to reduce the spread of Corona virus. Wearing masks is one of the practices that help to control the spread of the virus according to world health organization. However, ensuring all people wear facemask is not an easy task. In this paper, we propose a simple and effective model for realtime monitoring using the convolution neural network to detect whether an individual wears a face mask or not. The model is trained, validated, tested upon two datasets.

KEYWORDS: Face mask, Convolution neural network, deep learning TensorFlow.

INTRODUCTION

COVID-19 or Corona virus is responsible for producing an atmosphere of terror as it can transmit through the respiratory system. Currently, there is neither medicine nor vaccine to fight against this virus. Therefore, the only options people have to maintain are the social distancing, wash hands regularly, and wear a mask.

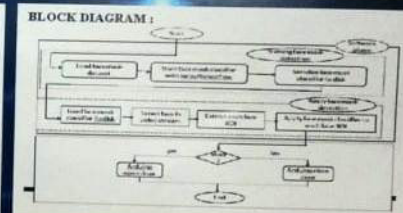
According to the World Health Organization (WHO)'s, official Situation Report - 203, Corona virus disease 2019 (COVID-19) has globally infected over 20 million people causing over 0.7 million deaths [1]. Individuals with COVID-19 have had a wide scope of symptoms reported like shortness of breath or difficulty in breathing. Elder people having lung disease are at higher risk [2] of getting corona virus than most.

AIM :
To implement a system that detect whether a mask is Worn by a person or not.


OBJECTIVE :
Training and applying Face mask Detection Technique using Image processing in Software phase.

Designing Arduino based hardware module for allowing the entry or not.


BLOCK DIAGRAM :



PROJECT SETUP :



Mask Detection



No Mask Detection

CONCLUSION :
Wearing a face mask all the time is difficult and exhausting task but is obligatory since Covid-19 crisis because face mask can help in controlling the outspread of the virus. Many public service providers ask the customers to wear masks in order to fulfill their services.

REFERENCE :
 1)W.H.O., "Coronavirus disease 2019 (covid-19) situation report, 203" 2020.
 2)W.H.O., "Advice on the use of masks in the context of COVID-19 interim guidance", 2020.
 3)"prajash/observations", GitHub, 2020.
 [Online]. Available <https://github.com/prajash/observations/tree/master/exp-ements/data>. 2020.

Program Outcomes (CO & PO)

PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12

Name & Sign of Students

Chetna Hedao *Chetna*

Neha Kawadkar *Neha*

Vaishnavi Khamankar *Vaishnavi*

Vishal Gupta *Vishal*



Name & Sign of guide

Prof. Dr.P.D. Khandait *Dr. P.D. Khandait*

Title of Project: Face Mask Detection Using Python & Tenserflow

K.D.K COLLEGE OF ENGINEERING, NAGPUR
DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

TITLE OF PROJECT: "ARDUINO BASED COLOR SORTING MACHINE"
NAME OF STUDENTS:- 1) Harshita Borkar 2) Mohan Rambhad
3) Kalyani Pansalkar 4) Ankit Karanjikar
NAME OF GUIDE: Dr. Jyotsna Gawal
SESSION :- 2021-2022

ABSTRACT: Color based product sorting has a wide usage in fruits sorting as well as candy sorting industries. Now a day's industrial area requires demand for automation. Due to automation human efforts are going on decreasing day-by-day. The most effective solution among all is using a color sorting machine. Practically we can implement it in industries to optimize better results and to improve technology and provide less human effort. This document discusses the automatic classification tool that helps the classification mechanism to classify based on coloration. The TCS3200 color sensor was used for detection. With the help of the frequency readout of the sensor output, the absolute classification by color is completed. Components used are Arduino (Atmega328P) microcontroller, TCS3200 color sensor, servo motor and other electronic components.

KEYWORDS:- Arduino (Atmega328p) Microcontroller, TCS3200 Color Sensor, Servo Motor.

INTRODUCTION:
Color based product sorting has a wide usage in fruits sorting as well as candy sorting industries. Due to automation human efforts are going on decreasing day-by-day. The most effective solution among all is using a color sorting machine. Practically we can implement it in industries to optimize better results and to improve technology and provide less human effort. The TCS3200 color sensor was used for detection. With the help of the frequency readout of the sensor output, the absolute classification by color is completed. Components used are Arduino (Atmega328P) microcontroller, TCS3200 color sensor, servo motor and other electronic components.

AIM: To implement the smart and efficient color sorting machine using Arduino.

OBJECTIVE:

- 1) To implement color sorting machine without human involvement.
- 2) To construct the color sorter.
- 3) To sort the colored object accurately.

BLOCK DIAGRAM :

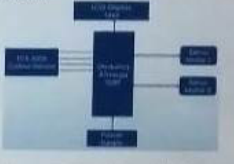



Fig. Arduino Based Color Sorting Machine

PROJECT SETUP :



CONCLUSION :
We have studied about the different types of research paper based on the color sorting machine or mechanism. The comparing technology used in the project. The TCS3200 color sensor is the best sensor for color sensing and we have built the color sorting machine using Arduino (Atmega328P).

REFERENCE :

- 1) Ch. Shivani, G. Indira, V. Appalaaju, "Arduino Based Colour Sorting Machine using TCS3200 Colour Sensor" 2019.
- 2) Krishna Jadhav, Gaurav Chaudhari, Abhishek Jadhav, "IoT Based Colour Sorting Machine" 2019.
- 3) Sarani Jhansi, Shobharani D.A, S. Naga Saiath, "IoT based coloured product sorting machine" 2019.

Program Outcomes (CO & PO)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13

Name & Sign Of Students	Name & Sign of guide	
Harshita Borkar (09)		
Mohan Rambhad (42)		
Kalyani Pansalkar (10)		
Ankit Karanjikar (32)		
		Dr. Jyotsna Gawal

Title of Project: Ardiuno Based Color Sorting Machine

K.D.K COLLEGE OF ENGINEERING, NAGPUR
DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

TITLE OF PROJECT : "RFID BASED PARKING SERVICE MANAGEMENT SYSTEM USING IOT "

NAME OF STUDENTS : 1) Aniket Dhage 2) Joel Charles
3) Gayatri Bodele 4) Trupti Bargat

NAME OF GUIDE: Dr. Jyotsna Gawai
SESSION: 2021-2022

ABSTRACT: RFID based Parking Service Management System using IOT is a project that offers an efficient vehicle parking management system with the help of RFID Technology. As the number of vehicles are increasing, the problems faced by manual parking management system are also increasing. Such problems can be eliminated to some extent by implementing an intelligent parking system where the entry and exit of vehicle is monitored with RFID technology. The system can only allow a vehicle entry when a valid RFID card id swiped by the vehicle owner. The system also had paid parking facility where the amount of parking gets deducted automatically whenever the card is swiped and the available number of car parking are displayed on a LCD display. This project deals with an interesting manner of security access based vehicle parking system using NodeMCU and RFID Technology.

KEYWORDS: Smart parking, IOT, NodeMCU, Firebase, RFID module.

Introduction:
With rapid growth of the metro cities all over the world, the necessity of a vehicle is increasing which also leads to a major problems of parking in most of the urban areas. So solution has been provided for the problems encountered in parking-IOT management systems via RFID technology. Check-ins of the parking will be under control with RFID readers, labels and barriers. In this we do the identification with the help of radio frequency. A vehicle user will hold an RFID tag. This tag is nothing but unique identification number assigned. In accordance with this number we will store, all basic information as well as the amount, he has paid in advance for the parking charges. Reader will be strategically placed at parking collection center. Whenever the vehicle user place a RFID card on RFID reader, card number detected on our database (Firebase) through ALP. The parking charge amount will be deducted from his prepaid balance and gate open when user authentication and payment is done.

Aim: To design and develop secure and fast parking management system.

Objective:

- 1) To reduce time of the traveller.
- 2) To develop the simple and robust system.
- 3) To provide efficient and transparent parking service management system.

Block Diagram:

Fig: RFID Based Parking Service Management System Using IOT

Project Setup:

Fig: Picture of project setup

Conclusion: The concept of Smart Cities is always been a dream for mankind. Since the past couple of years huge development has been made in making smart cities. In our country we are using very poor vehicle parking facility. To improve that we have designed this RFID based system. The system helps the person to park his/her vehicle at parking place and also make the payment securely from the RFID card. The firebase is employed to give this data provision.



Reference: 1) Elakya R, Juhi Seth, Pola Ashritha, R Namith, "Smart Parking System using IOT" on 1 October 2019, ijeat.org
2) Janak Parmar, Pritikana Das, Farhat Azad, Sanjay Davea, Ravindra Kumar, "Evaluation of Parking Characteristics: A case study of Delhi" on 26-30 May 2019, <https://www.sciencedirect.com>

Program Outcomes (CO & PO):

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Name & Sign of Students						Name & Sign of Guide						
Aniket Dhage						 Dr. Jyotsna Gawai						
Joel Charles												
Gayatri Bodele												
Trupti Bargat												

Title of Project: RFID Based Parking Service Management System Using IOT

K.D.K COLLEGE OF ENGINEERING, NAGPUR
DEPARTMENT OF ELECTRONICS AND AND TELECOMMUNICATION ENGINEERING
TITLE OF PROJECT : "SMART VEHICLE MONITORING AND ACCIDENT PREVENTION SYSTEM USING ARM"
NAME OF STUDENTS :- 1) Palash Kamthe 2) Pradnya Kawadkar
3) Tushar Dhakate 4) Rakshandha Belkhude
NAME OF GUIDE :- Prof. S. A. BAGAL
SESSION :- 2021-2022

ABSTRACT: -- After drunken driving, mobile phone usage is the leading cause of accidents around the world. The proposed system provides the vehicle with safety features like an SMS alert facility, blind-spot detection, and a tailgating detector. The vehicle is equipped with angle sensors and a GSM modem interfaced with NXP ARM 2148 processor. Further, the freedom to choose the number and the corresponding message to be sent is available when the vehicle is at rest.

KEYWORDS: - PIC Microcontroller, LPC2148, LCD 16*2, GSM Module, ADXL335, GPS Module

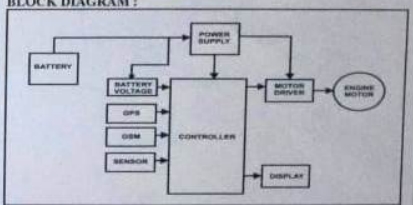
INTRODUCTION:
This project can be used to control the theft of vehicles, track the thefted vehicles and finding the location of vehicle and also implement the scene of accident alarm system. In this we are trying to program a GPS/ GSM module incorporating an accelerometer to report occurrences of accident automatically via the GSM communication platform (using SMS messaging) to the nearest agencies such as hospitals, police stations, fire services and so on, giving the exact position of the point where the crash had occurred This can provide early response and rescue of accident victims, saving properties and lives This controller is used to coordinate all the activities in the system.

AIM:
To design a vehicle control system and reduce the rate of accident by using arm.


OBJECTIVE:

- 1) Reliable and Cost-Effective System.
- 2) Fast Processing and Accurate System.
- 3) To use sustainable and profitable production methods.

BLOCK DIAGRAM :



PROJECT SETUP :



CONCLUSION:
This system can overcome the problems of lack of automated system for accident location detection. Consequently, the time for searching the location is reduced and the person can be treated as soon as possible which will save many lives The controller will process the data, as soon as input is received by the controller the alarm is ON and message is sent through the GSM module.

REFERENCE:

- [1] Vehicle Monitoring system by R. Vineth, M. Saravana kumar, U.N Shibi, Published in [IJET] Volume 06 Issue 03 | March 2019.
- [2] A survey on Vehicle monitoring system by D. Kavitha Published in [IJSR] Volume2, Issue 4 April 2017.

Program Outcomes (CO & PO)

PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12

Name & Sign Of Students

Palash Kamthe (44)
Palash Kamthe

Pradnya Kawadkar (20)
Pradnya Kawadkar

Tushar Dhakate (58)
Tushar Dhakate

Rakshandha Belkhude (21)
Rakshandha Belkhude

Name & Sign of guide

Prof. S. A. BAGAL
Prof. S. A. BAGAL

Title of Project: Smart Vehicle Monitoring and Accident Prevention System Using ARM

K.D.K COLLEGE OF ENGINEERING, NAGPUR
DEPARTMENT OF ELECTRONICS AND AND TELECOMMUNICATION ENGINEERING
TITLE OF PROJECT : "SMART DOOR LOCK SECURITY SYSTEM USING VARIOUS TECHNIQUES"

NAME OF STUDENTS :- 1) Sanskruti Dharme 2) Diksha Dahate
3) Sweety Kadwe 4) Rohit Bilwane
NAME OF GUIDE :- Prof. Rajendra B. Khule
SESSION:- 2021-2022

ABSTRACT: In terms of house security, the door is pivotal. To keep the hearthstone secure, the proprietor will keep the door locked at all times. Still, owing to a rush when leaving the house, the proprietor may forget to lock the door, or they may be doubtful if they've closed the door or not. Wireless security grounded operation have fleetly increased due to the dramatic enhancement of ultramodern technologies. Numerous access control systems were designed and/or enforced grounded on different types of wireless communication technologies by different people. Radio Frequency identification (RFID) is a contactless technology that's extensively used in several diligences for tasks like access control system, book shadowing in libraries, tollgate system, forced chain operation, and so on. For enforcing this design, we will be using Arduino mega 2560 pro mini, a fingerprint sensor, Keypad module, ESP-32 CAM module, RFID sensor, solenoid lock and ESP8266. We have also created an application for monitoring and controlling the security features of the door lock. We can also open the door through mobile fingerprint.
Keywords: Arduino Nano, RFID, R307, Keypad, ESP8266, ESP-CAM

INTRODUCTION:
 Face recognition, password and fingerprint have been used in Smartphone in past few years. It is a cool technology where we can unlock mobile phones or to access any application that require high security. With ESP-32 CAM and Arduino Nano, we can try develop a simple project that uses your face as ID using ESP-32 CAM, password and fingerprint using Arduino Nano. This project also has its own app for controlling & monitoring. The application has many combination features and can also unlocks the door using android fingerprint.

AIM:
 The aim of Smart Door Lock Security System Using Various Techniques is to provide a smart solution to overcome the challenges and provide a feasible solution.

OBJECTIVE:

1. To develop an unlocking system based on multiple techniques such as password, RFID, fingerprint.
2. To develop an application for controlling and monitoring door lock from remote location.
3. Getting the locking device connect to the internet which will the camera of panel for monitoring.

BLOCK DIAGRAM:

APPLICATION USER INTERFACE (UI):

CONCLUSION:
 The main purpose of this project is to build a door lock with many security features as possible and beneficial to each and every individual. We have built this system using Arduino and ESP-32 Cam module. The system we designed is a succeed and provides security more effectively.

REFERENCE:

- [1] Karan Khar, Aniket A. Kale, Supriya Rajankar, "Arduini Based Door Access Control" Oct 17) Vol-04, Issue02.
- [2] Shweta Chanda, Deepak Rasaily Prema Khula, "Design and of a Digital Code Lock using Arduino" (IJETT)- Vol 32 No 5- February 2016.

Program Outcomes (CO & PO)

PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12

Name & Sign of Students

Sanskruti Dharme (23) *[Signature]*
 Diksha Dahate(07) *[Signature]*
 Sweety Kadwe(24) *[Signature]*
 Rohit Bilwane(48) *[Signature]*

Name & Sign of guide

Prof. Rajendra B. Khule *[Signature]*

Title of Project: Smart Door Lock Security System Using Various Techniques

K.D.K COLLEGE OF ENGINEERING, NAGPUR
DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING
TITLE OF PROJECT : "FORMULATION OF TRIANGULATION NETWORK MODEL USING SIMULATE ENVIRONMENT FOR CO-OPERATIVE COMMUNICATION IN WSNs USING MATLAB"

NAME OF STUDENTS :- 1) Ganesh Dighorikar 2) Kavi Katekhaye
3) Alanqar Hedao 4) Khushali Zode
NAME OF GUIDE :- Prof. V. N. Mahawadiwar
SESSION :- 2021-2022

ABSTRACT: Wireless Sensor Networks (WSNs) have gained universal attention now a day's owing to the advancements made in the fields of information and communication technologies and the electronics field. This innovative sensing technology incorporate an immense number of sensor nodes or motes set up in an area to perceive any continuously fluctuating physical phenomena. These tiny sensor nodes sense and process the sensed data and transfer this information to a base station or sink via radio frequency (RF) channel.

INTRODUCTION :
 In this project we will simulate the triangular network modelling using a wireless sensor network (WSN) for co-operative communication in Matlab. Wireless sensor network will be designed and simulate in a Matlab software in order to design a triangular network and simulate it for co-operative communication. Cooperative communication needs to consider various energy saving measures. In high dynamic networks, saving energy while maintaining the reliability of nodes is an important research direction. Although multiple forwarding nodes are used in existing cooperative communication protocols to improve the reliability of nodes.

AIM :
 To design formulation of triangulation network model using simulate environment for co-operative communication in WSNs using Matlab.

OBJECTIVE :

- 1) The primary objective of this research is to devise energy efficient routing protocols for WSNs.
- 2) Study the various categories of energy efficient routing algorithms emphasising their merits and demerits for co-operative communications.

DIAGRAM :

Fig - Cellular Co-operative Communication System

RESULT :

Fig: Showing the permutation for 20 and 50 nodes using co-operative communications protocols.

CONCLUSION :
 The deployment and maintenance should be easy and scalable. As energy is utilised more for communication purpose. The triangulations rules were applied for 20, 50 and 100 nodes demonstration for WSNs. It is used in agriculture sector & industry area.

REFERENCE :

- 1) www.mdpi.com/journal/Sensors 2019, 19, 4690, doi:10.3390/s19214690, A Survey of Collaborative UAV-WSN Systems for Ecient Monitoring Dan Popescu, Florin Stoican, Grigore Stamatescu, Oana Chenaru and Loretta Ichim.
- 2) Abed A., Alkharib A., and Baicher G. S. "Wireless Sensor Network Architecture," International Journal on Computer Networks Communication Systems, vol. 35, pp. 11-15, 2012.

Program Outcomes (CO & PO)											
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Name & Sign Of Students						Name & Sign of guide					
Ganesh Dighorikar(36)						 Prof. V. N. Mahawadiwar					
Kavi Katekhaye (40)											
Alanqar Hedao (30)											
Khushali Zode (12)											

Title of Project: Formulation of Triangulation Network Model Using Simulate Environment for Cooperative Communication in WSN Using MATLAB



K.D.K COLLEGE OF ENGINEERING, NAGPUR
DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING
TITLE OF PROJECT : "Designing and Implementation of Adaptive Hierarchy Segmentation of Bone Tumor Using Neural Network in MATLAB"



NAME OF STUDENTS :- 1) Hemant Markhade 2) Prajwal Selokar
 3) Nisha Raut 4) Ateef Ahmad
 NAME OF GUIDE :- Prof. Vijay V. Chakole
 SESSION :- 2021-2022

ABSTRACT: Abstract: A tumor is an abnormal growth of new cells that can developed in any of the body's organs. In past few decades, there are numerous kinds of tumors that are found in the human body like Bone tumor, Brain tumor, Breast tumor, etc. that are detected physically by doctors, but because of low pixel quality and noise to the X-ray images of infected body parts, the tumor detection is a complex task and it also time taking. This proposed work is based Convolution Neural Network (CNN) technology collaborated with the MATLAB with the help of Digital X-rays

KEYWORDS:- CNN , Bone tumor , X-Rays

INTRODUCTION:-

Cancer is defined as an abnormal cell divide uncontrollably. There are about 2.5 million Indians living with cancer, as determined by a study conducted by the National Institute for Cancer Prevention and Research (NICPR). Every year, more than 7 million new cancer patients are diagnosed and more than 556,400 people die as a result of cancer Independently without needing any help to a blind person. According to the International Agency for Cancer Research (IARC)[26], there would be 21.7 million new cancer diagnoses and 13 million deaths from cancer in the year 2030.

AIM:-

To Design and Implement the Hierarchy Segmentation of Bone Tumor Using MATLAB.

OBJECTIVE:-

- 1.To create database, multiple digital bone x-ray images used for pre-processing and post-processing.
- 2.To perform the thresholding and morphological operation in the given dataset.
- 3.Comparison and the result analysis of the dataset gives best results by applying average filter and bilateral filter.

BLOCK DIAGRAM:-

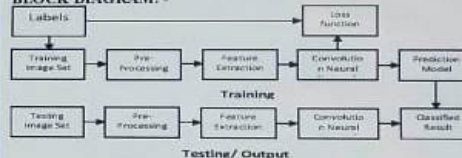


Fig:- Proposed System Block

Simulation Output:-



Fig1:- Tumor Detected



Fig2:- No Tumor Detected

CONCLUSION:-

This system of bone tumor detection using convolution neural network is carried out with MATLAB. This similar project can be further improved for identifying the bone cancer stages. The proposed strategy combines a sophisticated picture handling operation with a bone tumor evaluation to detect the tumor.

REFERENCE:-

1. Krupali D. Mistry and Bijal J. Talati "Integrated approach for bone tumor detection from MRI scan imagery" IEEE Signal and Information Processing (IConSIP), International Conference 2017:1-5 <https://ieeexplore.ieee.org/abstract/document/6340479> 2017

Program Outcomes (CO & PO)

PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
3	3	3	3	3	3	3	3	3	3	3	3

Name & Sign Of Students

Name & Sign of guide

Hemant Markhade
 Prajwal Sekole
 Nisha Raut
 Ateef Ahmad

(Signature)
 Prof. Vijay V. Chakole

Title of Project: Designing and Implementation of Adaptive Hierarchy Segmentation of Bone Tumor Using Neural Network in MATLAB



K.D.K COLLEGE OF ENGINEERING, NAGPUR
DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

TITLE OF PROJECT: "ARDUINO BASED COLOR SORTING MACHINE"

NAME OF STUDENTS :- 1) Harshita Borkar 2) Mohan Rambhad

3) Kalyani Paunikar 4) Ankit Karanjikar

NAME OF GUIDE: Dr. Jyotsna Gawai

SESSION :- 2021-2022



ABSTRACT: Color based product sorting has a wide usage in fruits sorting as well as candy sorting industries. Now a day's industrial area requires demand for automation. Due to automation human efforts are goes on decreasing day-by-day. The most effective solution among all is using a color sorting machine. Practically we can implement it in industries to optimize better results and to improve technology and provide less human effort. This document discusses the automatic classification tool that helps the classification mechanism to classify based on coloration. The TCS3200 color sensor was used for detection. With the help of the frequency readout of the sensor output, the absolute classification by color is completed. Components used are Arduino (Atmega328P) microcontroller, TCS3200 color sensor, servo motor and other electronic components.

KEYWORDS:- Arduino (Atmega328p) Microcontroller, TCS3200 Color Sensor, Servo Motor.

INTRODUCTION:

Color based product sorting has a wide usage in fruits sorting as well as candy sorting industries. Due to automation human efforts are goes on decreasing day-by-day. The most effective solution among all is using a color sorting machine. Practically we can implement it in industries to optimize better results and to improve technology and provide less human effort. The TCS3200 color sensor was used for detection. With the help of the frequency readout of the sensor output, the absolute classification by color is completed. Components used are Arduino (Atmega328P) microcontroller, TCS3200 color sensor, servo motor and other electronic components.

AIM: To implement the smart and efficient color sorting machine using Arduino

OBJECTIVE:

- 1) To implement color sorting machine without human involvement
- 2) To construct the color sorting machine
- 3) To sort the color based on frequency

BLOCK DIAGRAM :

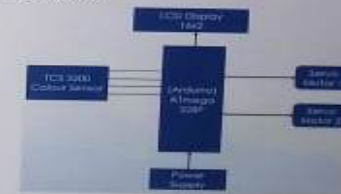


Fig: Arduino Based Color Sorting Machine

PROJECT SETUP :



CONCLUSION :

We have studied about the different types of research paper based on the color sorting machine or mechanism. The comparing technologic used in the project. The TCS3200 color sensor is the best sensor for color sensing and we are built the color sorting machine using Arduino (Atmega328P).

REFERENCE :

- 1) Ch. Shrivani, G. Indira, V. Appalaraju, "Arduino Based Colour Sorting Machine using TCS3200 Colour Sensor" 2019.
- 2) Krishna Jadhav, Gaurav Chaudhari, Abhishek Jadhav, "IOT Based Colour Sorting Machine" 2019.
- 3) Saranu Jhansi, Shobharani D A, S. Naga Sahith, "IOT based coloured product sorting machine" 2019.

Program Outcomes (CO & PO)

PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12

Name & Sign Of Students

Harshita Borkar (09)

Mohan Rambhad (42)

Kalyani Paunikar (10)

Ankit Karanjikar (32)

Name & Sign of guide

Dr. Jyotsna Gawai

Title of Project: Arduino Based Color Sorting Machine