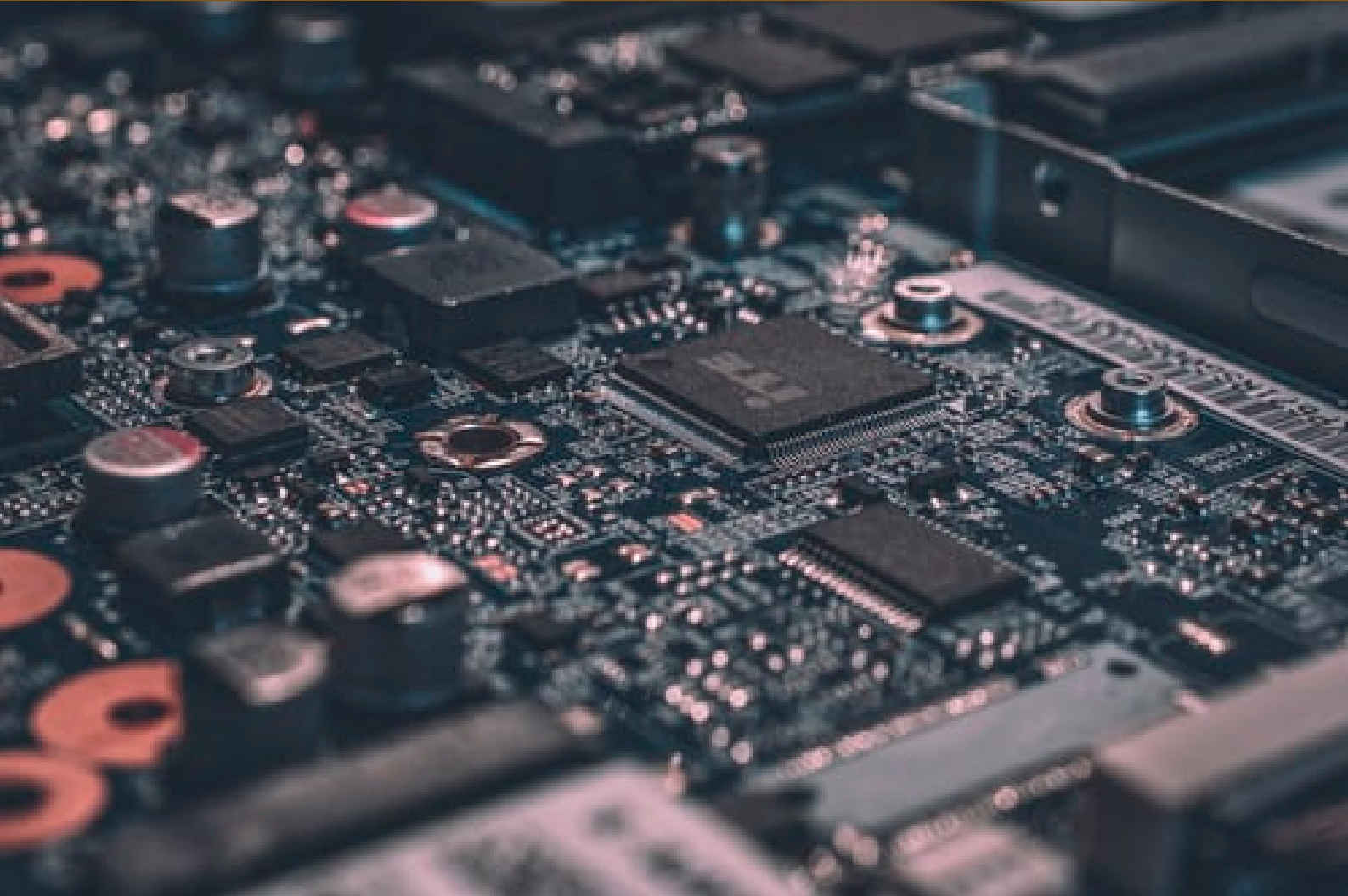




RAYAT SHIKSHAN SANSTHA'S  
**KARMAVEER BHAURAO PATIL COLLEGE OF  
ENGINEERING, SATARA**

**DEPARTMENT OF COMPUTER SCIENCE &  
ENGINEERING**



**TECHNOBITE  
2019-20**

Title	Authors details	Editor	PAGE NO
1 How AI is changing the world	Shubham Kumbhar	1. Prof. A. S. Desai 2. Adil Mulla	1
2 Long-term Effects of Living in a Technological World	Pradnya Jadhav		3
3 DHWANI : Translation of sign language into text and voice for Deaf & Mute People	1. Shweta Bhosale 2. Chaitrali Bhosale 3. Diksha Deshmukh 4. Nikita Dhane 5. Namrata Mane		5
4 Fake Product Identification Using Blockchain Technology	1. Adil Mulla 2. Mukesh Pandit 3. Vaishnavi Rajput 4. Devisha Palkar		10
5 IoT based smart Energy monitoring	Payal Puneekar		17
6 Implementing IoT for Dispensing Sanitary Napkins Using Digital Payment	1. Chinmay Garge 2. Shubham Nikam 3. Anagha Nimbalkar 4. Sahil Shaikh		22
7 Home Automation System	Aarti Kaktkar		30
8 KrishiMitra: Innovative and Sustainable Approach Towards Site Specific Agriculture	1. Shweta Poojari 2. Ritvika Pawar 3. Samrudhi Shinde 4. Supriya Magar		32



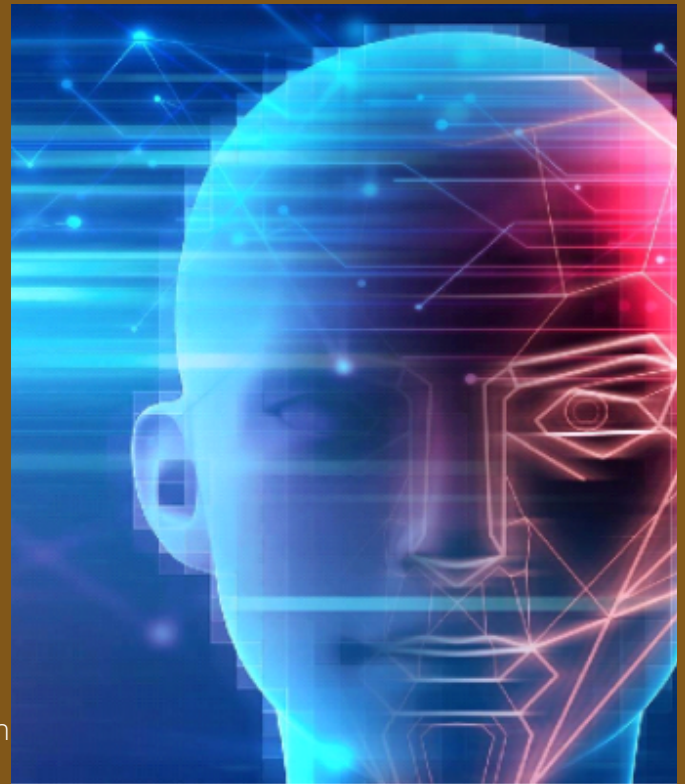
# 1. How AI is changing the world?

All of us being students with technical background have studied or knew about Artificial Intelligence as It is branch of computer science which deals with helping machines finding solution to complex problems in a more human like fashion. It won't matter if we say AI has now become irreplaceable part of our lives. AI drastically brought changes in technical fields. Because of its high efficiency and accurate performance AI is contributing in every field infact also including the device in your hand and what not?

Yet our generation is about to see a similar transformative technology which will literally change everything. Artificial Intelligence is likely to take us into a similar unrecognizable era of unimagined innovation and social upheaval.

## WHY AI ?:

- One thing that all of us have to understand is that AI is the next big thing.
- Businesses can and should ensure themselves to be future proof by implementing AI technologies. If this is the way where the world is heading, why not to head in that same direction and be adaptable to that change.
- In the AI-enabled future, humans are going to be ready to converse and interact with one another within the language of choice, not having to stress about miscommunicating intentions
- Machine learning models are going to be ready to understand context, nuance, and colloquialisms that help to fill the gaps of human communication.
- This would help in the gradual shift of the workforce towards Artificially Intelligent systems. It would also aid in keeping some time as a buffer if something goes wrong.



*Figure: graphic illustration robotic of human.*

# 5 CRAZY FACTS ABOUT AI

- **Jobs:** In coming years AI is likely to be replace 16% of jobs because of their intelligence It will be more convenient for industries to use AI based robots to get the job done which does not require any skills.
- **Human Relationship:** It is believed that in decade or two marriages between humans and robots will be made legal well it is true that at the moment robots are not that much advanced for this case.
- **Preferance:** Studies show that most people prefer the sound of a female voice to that of a male (think of Siri!).
- **AI can repair itself:** There is a robot that rebuilt itself after noticing its performance had dropped after losing 2 of its 6 legs. The robot did not know what the problem was but fixed it by trial and error.
- **Customer Service:** 85% of customer interactions are thought to not require human customer service anymore, by the end of this decade

## SUMMARY

AI is about creating an ultra-intelligence, a technological super-mind, with downstream super-intelligent machinery, agents, robots, tools, systems, devices, and applications.

Let me here refer to Mark Andreessen, the Netscape co-founder, who said "AI is likely to represent a foundational technical change that will force all sectors of the economy to rethink the way they do things.

"Most advances in technology are incremental, but our sense is that AI has the potential to be one of these architecture changes that leads to almost complete turnover of products and companies".

It is not just a leading technology, but the master of all emerging technologies going through the stages:

- Conceptual/Theoretical/Hypothetical
- Empirical/Research and development / experimental / trial projects
- Working demonstrators
- Commercialization/mass diffusion
- Taking over the world as a human-machine superintelligence

*-Shubham Kumbhar.*

*Department of Computer Science and Engineering Satara.*

# 2. Long-term Effects of Living in a Technological World

No matter where we look today, we are surrounded by technology. We are so dependent on technology that we have started taking it for granted. We do not realize how much it affects us. We think of us driving technology while the truth is the other way round. We are now driven by technology. If you do not agree with this statement, then simply try making through a single day without technology. No electricity, no electronic gadgets, no telephones and no cars. Try pumping water by hand from the well and walking to your school.

Imagining life without technology is unthinkable. It is a great achievement how far technology has come through. It is due to this technology that we have learned so much about our world and body. Like everything else, technology too has its positive and negative effects.

## LONG-TERM POSITIVE EFFECTS OF TECHNOLOGY

- Living in technological worlds allows people to achieve great things in just a short period of time.
- Due to advance technology, communication was made easier.
- They are able to establish units which allow people to talk and see people living across the boundaries.
- This had given great opportunity not just to families and friends but also for businessman as well.
- A wide range of people can now access and see products and services even if it's thousand miles away from their location.
- For people with disabilities, technology had given them the chance to access things easily.

## LONG-TERM NEGATIVE EFFECTS OF TECHNOLOGY

- Due to the wrong use of advance technology, people are able to develop social isolation.
- This is being characterized by lack of communication or contact to people in a normal daily living like social activities, friends and workplace.
- They are able to isolate themselves by means of spending greater time listening to iPods, spending time in front of the computer and usage of mobile devices.
- According to research, people that suffer from social isolation are identified to live a shorter life.
- Technology is the one that created the perfect formula for depression due to human's lack of contact, inactive lifestyle and overeating.
- Poor sleeping habit is another disadvantage of technology.

# SUMMARY

Technology is a beautiful thing. The need of the hour is to understand that the over haul of technology will eventually lead to destruction. We need to find a balance. In order to minimize the long term negative effects of technology we need to implement change today. By making healthier food choices and 'going green', we can still save ourselves from damage. Implementing simple lifestyle changes will not seem big but will make a huge impact on the natural resources. Driving hybrid cars, limiting the use of trans-fat food, using fluorescent bulbs, recycling, eliminating use of plastics, and exercising out in the fresh air are some simple steps that you can start from your home. If every person realizes their duty, then the world would become a much better place to live in.

We cannot ignore that technology has many long term negative effects, but it has made our lives better. The negative effects are the results of our own over exploration and over usage of technology.

*--Pradnya Jadhav.*

*Department of Computer Science and Engineering Satara*

# DHWANI : Translation of sign language into text and voice for Deaf & Mute People

Dipali D Ghatge1\*,  
Computer Science and Engineering Department  
Karmaveer Bhaurao Patil College of Engineering,  
Satara.  
Satara, Maharashtra, India.  
Email: hodcse@kbpcoes.edu.in

Shweta Sanjay Bhosale2, Chaitrali Nitin Bhosale3, Diksha Jitendra Deshmukh4, Nikita Sunil Dhane5, Namrata Dilip Mane6  
2, 3, 4, 5,6 Department of Computer Science & Engineering, DBATU University, Satara, India Karmaveer Bhaurao Patil College of Engineering, Satara  
{2shwetabhosale1711, 3chaitralibhosale18, 4dikshadeshmukh1527, 5nikitadhane19, 6namratamane039}@gmail.com

**Abstract:** People who are deaf or mute use sign language as their primary communication tool. They can communicate among themselves but face challenging circumstances outside the world. First, the recognized gesture has converted into a text message so that ordinary people can understand it. Thus, the proposed system will bridge the gap between mute-deaf people and the rest of society. We summarize research results of hand gesture methods, databases, and compared vital gesture recognition phases. The advantages and limitations of the discussed systems are outlined. **Keywords: sign language, deaf, dumb, hand gesture, image matching, feature matching, feature extraction, gesture recognition**

## I. INTRODUCTION

Sign language is the only and cheapest communication approach for people who have a disability, like hearing and speaking. According to a survey conducted by the Indian government in 2011, over 2.68 crores of Indians suffered from some form of disability. Of that number, 18.9% had a speech disability, and 7.5% had a hearing disability[1]. Sign language is composed of signs and visual gestures that deaf and mute people use to talk. A sign language is a coded gesture where every sign has a particular meaning. Worldwide, there are currently 143

different sign languages, mainly American Sign Language, Japanese Sign Language, British Sign Language, French Sign Language, and Indian Sign Language. [2]. Every country has its language since sign language is not a universal language. Also, it has its own grammatical, and syntactic meaning as per sign language is referred, which differs from country to country and the region. As gestures are means of non-verbal communication, they are a commonly used communication method and the voice.

This project intends to overcome the communication gap between ordinary people and mute-deaf people. Because of miss-communication deaf & mute people feel not to communicate. They can never express their feeling. To reduce the loneliness and the above issues, we proposed a system that provides a voice to the deaf and mute people & promising them independent life.

## II. LITERATURE SURVEY

The deaf and dumb use sign language to communicate, which is difficult to interpret by the individuals who are not well-aware of it. Thus, a device needs to be built to interpret the gestures into text and speech, which would be a



significant step to communicate between the deaf and dumb individuals and the general public.

Hand gestures being very popular among these individuals, serve as a suitable means of communication. Thus, the hand is considered an input for a system that would display the corresponding result either in text or speech, or both. Computer recognition of sign language is essential to research.

There have been different sign languages in the world. Here every sign has a specific meaning allotted to it. This universal sign we use it.



Fig. 1. Signs(A-Z),Numbers (1-10)

### III. PROPOSED FRAMEWORK

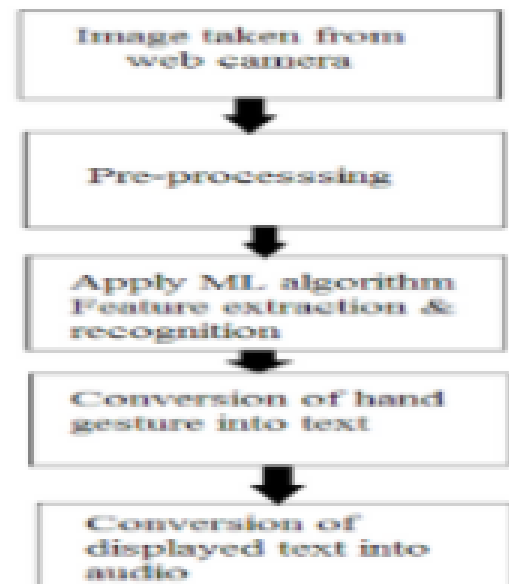


Fig.2 Flow of proposed framework

Figure 2 explains the flow of the proposed framework system. The gesture recognition system is mainly composed of image acquisition, segmentation, and feature extraction for gesture recognition[3]. We referred to all the previous investigations done, based on which many components have been added to this framework to avoid errors and improve the system's efficiency.

This proposed system shows the various processes involved in hand gesture recognition. Webcam captures the hand gestures, which are segmented using a skin detection algorithm. Thus, we get an image of interest. The features are then extracted, which are matched with the features already stored in a database. If the features match, the desired output is shown as text and speech; else, the proper error message will be displayed if a gesture is not found.

This process is very feasible as it can easily detect the skin irrespective of the background. If there is any gesture in contact with the body, hand region can be segmented using bounding boxes for all skin regions and then sorting out the one for hand as the different body part is of different size.

#### A.INPUT IMAGE

The input image is the first step of the proposed framework, where the image is captured using the webcam. This process is also called image

acquisition. The input image is then resized to reduce the computational errors and complexity. The query image is in RGB format, as shown in Figure 3.

**Fig. 3. Input RGB image**

#### B. PRE-PROCESSING

In pre-processing, images are acquired and segmented.

Pre-processing starts with image acquisition, which is the process of sensing an image. So in image acquisition, the image is sensed by "illumination." It will also involve pre-processing, such as scaling. In image acquisition, the image will be taken from a database. Segmentation is when an image is converted into small segments to extract the more accurate image attribute. Suppose the segments are correctly autonomous (two segments of an image should not identify information). In that case, representation and description of the image will be accurate, and while taking rugged segmentation, the result will not be accurate. Here the Segmentation hands are carried out to the separate object and the background. Specific features represent segmented images of hands. The following figure 4 shows the segmented hand image.

**Fig 4. Segmented image**

#### C. Apply CNN Algorithm

CNN : ( Convolutional Neural Network)

A convolutional neural network is often used for image analysis. Also known as shift-invariant

artificial neural networks or space invariant artificial neural networks. CNN algorithm reads a large image quickly and accurately, even for huge images. In this way, we can sort out data further and create various model sets that we can use to analyze the data. Hand gestures are a popular research topic in machine learning and computer vision as they help human-computer interaction. In gesture recognition, the goal is to develop systems that can identify and use specific human gestures to convey information.

#### **FEATURE EXTRACTION**

Feature extraction is a part of the dimensionality reduction process. A primary set of the raw data is divided and reduced to more manageable groups To be easy to process. The most important aspect of these large data sets is that they have a large number of variables. These variables require many computing resources to process. So Feature extraction supports the perception of the best feature from those big data sets by select and combines variables into features, thus, efficiently reducing the amount of data. These features are easy to process but can still describe the actual data set with accuracy and originality. The following figure 7 explains the feature extraction method.

**Fig 5. Feature extraction method**

Figure 5 shows Feature Extraction Method where four windows are displayed.

1. Test Window – A captured picture is shown in a green box, where background and light effects matter.
2. Mask Window – Convert the colored image in black & white format. The value of each pixel of

an image is recalculated based on a given mask matrix.

3. Result Window – Shows the actual result.

4. Track bars Window - To set the range of HSV values. HSV means Hue-Saturation-Value, where the Hue is the color. Saturation is the grayness so that a Saturation value near 0 means it is dull or grey looking. Moreover, value is the brightness of the pixel.

#### SIGN RECOGNITION

Sign recognition using LDA is a dimensionality reduction technique based on extracting the desired number of principal components of the multi-dimensional data. The gesture recognition using LDA algorithm that involves two phases

- Training Phase
- Recognition Phase

Fig 6. Dimensionality reduction

The following figure 6 shows the dimensionality reduction technique. Each gesture is represented as a column vector in the training phase. These gesture vectors are then normalized concerning the average gesture. Next, the algorithm finds the eigenvectors of the covariance matrix of normalized gestures using a speed-up technique that lessens the number of multiplications to be performed. The corresponding gesture space projections were obtained by the eigenvector matrix multiplied by each gesture vector. A subject gesture is normalized in the recognition phase concerning the average gesture and then projected onto gesture space using the eigenvector matrix. Lastly, Euclidean distance is computed between this projection and all known projections. The minimum value of these comparisons is selected for recognition during the training phase. Finally, the recognized sign is converted into appropriate text and voice, which is displayed on GUI.

#### D. Conversion of hand gesture into text

In sign language, hand gestures are commonly used. Communication with the word can be very challenging for deaf people. A camera attached to the computer will capture images of the hand, and

the hand gesture of the person can be recognized and converted into a text message using feature extraction.

#### E. Conversion of displayed text into audio.

A person with severe or profound eye loss can have a severe problem, too does not saw anything that person may use that audio conversion. These converted text messages convert into audio format.

### IV. ADVANTAGES AND LIMITATIONS

#### Advantages:

- A gesture-based communication recognition system is a precious application in the public eye for individuals who cannot talk.
- The system language recognizes Signs in real-time portrays an essential role in enhancing informal communication among people with hearing disabilities and average persons.
- Sign language and gestures can be converted into text messages.

#### Limitations:

- Video Background color matters in the system.
- Proper Light effect around the video creator is needed.

### VI. CONCLUSIONS AND FUTURE WORK

We successfully performed gesture recognition and voice conversion through image processing for the deaf and dumb. We use an image as an input, and the method generates text and speech as output. Implementation of this system gives up to 90% accuracy and works successfully in most of the test cases. Sign language recognition is dynamic research. One can likewise utilize more methods for shading identification, picture separating, for grouping. In the future, we will provide more techniques to the sign language recognition system and plan on developing it for more words and sentences.

### REFERENCES

- [1] Shraddha R. Ghorpade, Surendra K. Waghmare, "Full-Duplex Communication System for Deaf & Dumb People," International Journal of Emerging Technology and Advanced Engineering (IJETAEE), Volume 5, Issue 5, May 2015, ISSN 2250-2459.
- [2] Er. Aditi Kalsh, Dr. N.S. Garewal, "Sign Language Recognition System," International Journal of Computational Engineering Research (IJCER), Volume 03, Issue 6, June 2013.
- [3] Vishal Bhamre, R.Sreemathy, HrushikeshDhumal, " Vision-Based Hand Gesture Recognition Using Eccentric Approach for Human-Computer Interaction," International Conference on Advances in Computing, Communications and Informatics (ICACCI), 2014.
- [4] Cordelia Schmid, Roger Mohr, Christian Bauckhage, "Evaluation of Interest Point Detectors," International Journal of Computer Vision (IJCV), 151-172, 2000.
- [5] Qing Chen, Nicolas D. Georganas, Emil M. Petriu, "Real-time Vision-based Hand Gesture Recognition Using Haar-like Features," Instrumentation and Measurement Technology Conference (IMTC) Warsaw, Poland, May 1-3, 2007.
- [6] SawantPramada, Deshpande Saylee, NalePranita, NerkarSamiksha,
- [7] Mrs. Archana S. Vaidya "Intelligent Sign Language Recognition Using
- [8] Image Processing," IOSR Journal of Engineering (IOSRJEN), Volume 3, Issue 2, Feb. 2013, PP 45-51
- [9] [www. http://www.lifeprint.com/asl101/pages/signs/n/numbers1-10.htm](http://www.lifeprint.com/asl101/pages/signs/n/numbers1-10.htm)
- [10] M.K. Bhuyan, Debanga Raj Neog, and Mithun Kumar Kar, "Fingertip Detection for Hand Pose Recognition," International Journal on Computer Science and Engineering (IJCSE), Vol. 4 No. 03 March 2012, ISSN:0975-3397.

## Fake Product Identification Using Blockchain Technology

**Tarannum J. Sayyad**

*Computer Science and Engineering Department  
Karmaveer Bhaurao Patil College of Engineering, Satara.  
Satara, Maharashtra, India.  
Email: tarannum.sayyed@kbpcoes.edu.in*

**Adil Tofiq Mulla**

*Computer Science and Engineering  
Department Karmaveer Bhaurao Patil  
College of Engineering,  
Satara, Maharashtra, India.  
Email: adilmulla091@gmail.com*

*Satara, Maharashtra, India.*

*Email:  
devisha.palkar25@gmail.com*

**Mukesh Janardhan Pandit**

*Computer Science and Engineering  
Department Karmaveer Bhaurao Patil  
College of Engineering,  
Satara, Maharashtra, India.  
Email: mukeshpandit219@gmail.com*

**Vaishnavi Sanjaysinh Rajput**

*Computer Science and Engineering  
Department Karmaveer Bhaurao Patil  
College of Engineering,  
Satara, Maharashtra, India.  
Email: vaishnavisrajput15@gmail.com*

**Devisha Babasaheb Palkar**

*Computer Science and Engineering  
Department Karmaveer Bhaurao Patil  
College of Engineering,*

**Abstract**

*Blockchain innovations have acquired interest in the course of the most recent years. One of the most talked about issues is currency exchange, but its application is not limited only to Digital currency. So it has the potential to influence different business sectors. Blockchain technology has brought greater transparency and ease in large transactions. We can detect counterfeit goods using blockchain technology. This paper is to unravel various cases in the anti-counterfeit areas. The question that arises when buying any item in today's world is whether it is fake or not. And the lack of these things has been shown a huge impact on economic progress. Therefore, in order to curb all counterfeit goods, it is important to bring transparency about the goods to the notice of the consumers. The growing presence of counterfeit and unsafe products in the world is a cause for concern and blockchain technology has taken the next step towards its complete annihilation. Not only the use of technology will reduce the production of counterfeit goods, but everyone needs to be aware of this. By producing and packaging the right items each of those items needs to be given a digital code with its own identity. This*

*research paper proposes the prototype for identification of counterfeit products using blockchain technology. It discusses the software implementation process in which the product code is scanned using this application and then verify if the given product is counterfeit or not.*

780

ISSN: 2233-7857 IJFGCN

Copyright ©2020 SERSC

International Journal of Future Generation Communication and Networking Vol. 14, No. 1, (2021), pp. 780-785

**Keywords**—*Blockchain Technology, Counterfeit, Transparency.*

## I. INTRODUCTION

Identification of counterfeit products in today's market is being a great challenge for consumers and it is very life threatening for the consumers when this takes place in pharmaceutical fields. Other fields like electronics, apparel, fashion-accessories also face a huge impact on their brand due to counterfeit products. E-commerce has seen phenomenal growth over the years from \$39 billion in 2017 and it is projected to rise to \$200 billion by 2026. This comes in the wake of extending penetration of the internet and cell phones. After various market surveys it is found that the counterfeit products are increasing rapidly and the rise of counterfeit products can badly affect the development and economic growth. Also because of this the many top companies are getting bad remarks and losing their positions from the brand list. Counterfeit products are twins of the real products in the market.

Mostly all reputed companies are working to stop this process which is harmful to everyone in the entire world. The various branded or reputed companies are working on modern technologies to identify the counterfeited products from the original product in the market and to improve this working, the IT sector can give them positive signals and can help to prevent counterfeit goods. Among these various technologies available in the IT sector blockchain is one of the promising technologies which can be used for reducing the counterfeiting of goods. A blockchain is a type of distributed ledger that is designed to prevent tampering. Based on the distributed consensus algorithm, smart contracts and encrypted algorithms. Blockchain technology helps to solve the problem of counterfeiting of a product. And In this research paper we proposed a product surveillance blockchain system that will share information about products from the manufacturer to the customers. We are developing such an application that will work on smartphones which will be giving all the detailed information about the products to the consumer who buys that product and help them to identify if the product is original or counterfeited.

## II. LITERATURE SURVEY

A fake commercial center can influence the improvement of a country. Fake items are fakes or unapproved copies of the genuine item. Fake items are regularly created with the expectation to exploit the prevalent estimation of the imitated item. Pretty much every organization faces a fake danger since it's influencing an organization's income as well as harms the brand's standing. While technology offers several solutions to authenticate the original product, some

technological tools, particularly artificial intelligence help create clones, blockchain technology creates chaining and tracing. What is required is consistent up-gradation and development to remain in front of the forgers. Therefore, it is important that we have regulations for the marketplace.

### **Existing System:**

#### **1. RFID Based Anti-Counterfeiting Systems :-**

The paper entitled 'A Comparison Survey Study on RFID Based Anti-Counterfeiting Systems' describes Radio frequency identification tag Anti-forging is an applied arrangement that has gotten consideration in the previous few years. This system represents a review concentrating on the exploration subject hostile to duplicating items utilizing Radio Frequency Identification tags on [product](#). Radio frequency identification (RFID) and remote sensor networks (WSN) are

781

ISSN: 2233-7857 IJFGCN

Copyright ©2020 SERSC

International Journal of Future Generation Communication and Networking Vol. 14, No. 1, (2021), pp. 780-785

two significant remote advances that have a wide assortment of utilizations and give limitless future possibilities, while RFID tags are like an actuator which requires a control signal and a wellspring of energy. RFID perceives areas and recognizable proof of labeled things — yet as opposed to perusing laser light reflections from printed standardized tag names, it uses low power radio frequencies to gather and store information. In a stockroom or distribution center, this system is utilized to automate information assortment. The transceiver scans radio frequencies and sends them to a RFID tag. The distinguishing data is then communicated from a little microchip inserted in the tag and communicated to the RFID reader.[1]

#### **2. Fake Product Detection Using AI-Based Technology :-**

This system proposes a solution that relies on machine learning-based technology which enables end-consumers to identify and verify products without any special equipment. By using image and text recognition. For identification, the end-consumers take photos of an item packaging, which contains product text information, logos, and perhaps accreditation marks/logos. These photos will be sent in a solicitation to the worker for processing and confirming. Afterward, the detection result will be returned to the end-consumer to make a further decision. In the case of fake product detection, the end-consumer has the ability to report this counterfeit product to the government system, such as the Safety Gate - EU's Rapid Alert System[2].

#### **3. Security with holographic barcodes using Computer generated holograms :-**

Holograms have been utilized to fight against fakes and to diminish forgery. Incorporating the possibility of standardized identifications into holograms [give](#) two level protection from forging. This framework acquaints a technique with increased security and genuineness in item distinguishing proof by utilizing holographic standardized identifications. The unique and client characterized item distinguishing proof code accommodated every item is changed over into Quick Response (QR) Code. The QR Code created is then changed over into a 3D image, hence giving a prominent security to the item. In this framework, Holographic standardized

tags utilizing Computer created visualizations are actualized utilizing MATLAB. The decoding of the barcode recreated from the holograms gives the corresponding product recognizable proof number assigned for the product.[3]

### III. PROPOSED WORK

There is no proper solution before tackling this problem. As barcodes can be copied easily there is no guarantee system either, nor a good solution to differentiate fake products from original products. Blockchain technology is one of the promising technologies which is emerging in recent years that can be helpful to tackle such a problem. Blockchain Technology can be used to monitor and regulate the product supply chain in the market so users can only get original products. The project's main goal was to deliver people's original product and help people to identify whether the product they are buying is an original or fake easily.

The system prototype will be a distributed application (DApp) with a supporting blockchain network. The network will be developed on hyper-ledger fabric which is an open source Blockchain development tool and uses DPoS/PBFT consensus algorithm by default.

*System execution stages:-*

#### *Stage 1: Product enrollment on the network*

The first step is to bring all manufacture into the blockchain network and collect their huge product database. The manufacture authentication is done via registration and giving them a proper id and password. Manufacturer will be the primary proprietor of the item. Manufacturer will request the administrator to add a product on the network at the time QR code will get

782

ISSN: 2233-7857 IJFGCN

Copyright ©2020 SERSC

International Journal of Future Generation Communication and Networking Vol. 14, No. 1, (2021), pp. 780-785

assigned to that product. Administrator will enroll the product and manufacturer on the network if the requestor is a genuine manufacturer. After the product is recorded in a network it will create a smart contract and a unique QR code of the product in which the details of the product is mentioned in an encrypted text form. To Secure the QR code from copying there is a Copy Sensitive digital image in QR code.

#### *Stage 2: Shipping of Product*

In the next step the manufacturer will ship the product to the distributor and status is set as shipped; it will not change the ownership of the product until a request from both parties is approved to buy and sell the product. As soon as both parties approve mutually, its ownership in the blockchain network will be transferred in the form of smart contract automatically after the payment is successful.

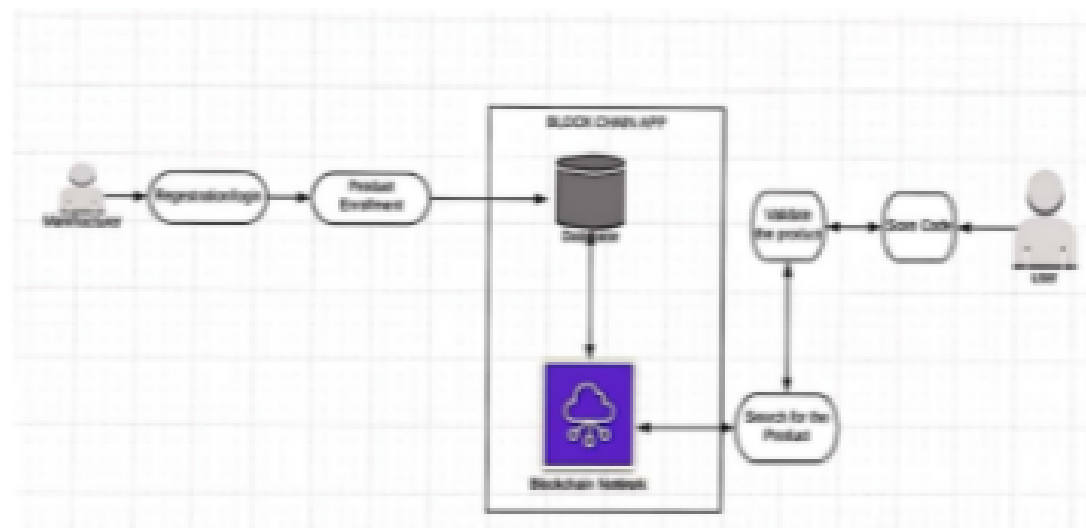
#### *Stage 3: End user get detail about product*

In this stage clients will be given an android application and buyers can scan QR code allocated to the item utilizing android application. The Scanner scans the product and decrypts the encrypted text in a given algorithm and gets the detail about the product that is the manufacturer and current owner of the product and can conclude if to purchase the item or not.



## IV. ARCHITECTURAL DIAGRAM

### Architectural Diagram for NESTA:-



 International Journal of Future Generation Communication and Networking

## SYSTEM FEATURES

### Advantages: -

#### 1. Enhanced Security: -

The information utilized by this methodology is obtained by an organization of distributed computers (nodes) around the world. Every last one of these distributed computers submits its computational ability to make these information bases secure and immutable.

783

ISSN: 2233-7857 IJFGCN

Copyright ©2020 SERSC

International Journal of Future Generation Communication and Networking Vol. 14, No. 1, (2021), pp. 780-785

#### 2. Decentralization: -

Using decentralized tasks and capacity, every hub of the Blockchain executes the confirmation, conveyance, and the executives of data at the local side. Blockchain technology doesn't depend on an extra outsider control, has no centralized control, and is independent.

#### 3. Transparency: -

The move towards blockchain is completely conveyed and straightforward. Anybody can get to them from any place in the world. While the substance isn't put away in the blockchains, the confirmations of legitimacy, presence, and responsibility for the substance can be autonomously checked by anybody by utilizing the public keys, regardless of whether it be an end customer, customs, an advanced criminologist or an authority.

#### 4. Privacy :-

Is any of my client information openly obvious? No, we use cryptography calculations to enlist simply a special identifier of the individual information and we implant such identifiers in the Blockchains. It is absolutely impossible to reproduce the substance from any identifier since we utilize single-direction cryptographic functions(hashes).

#### **5. Increased Efficiency:-**

Due to its decentralized nature, Blockchain removes the need for middlemen in many processes for different fields. In comparison to traditional, blockchain facilitates faster transactions by allowing P2P cross-border transfers with digital currency.

### **V. REQUIREMENT ANALYSIS**

#### **Software requirements: -**

Android studio, VMware, Flutter and Hyper-ledger.

#### **Hardware Requirements: -**

i) A computer with a minimum 8 GB ram with a processor like i5 or i7 with 15 to 20 GB storage space.

ii) A good android device for testing work or a PC emulator of android OS.

#### **OS Requirements: -**

Windows 10 OS for Pc and Android OS to run the application.

### **VI. FUTURE SCOPE**

1. Blockchain technology is as of now still in its general early stages in terms of use thus further investigation is required.

2. The future work of this framework can be proof of code simplicity. The client can believe that the appropriate application on account of the simplicity of code, and no excess code in will have extra utilization.

3. With the experience gained in this project, it is clear that by assigning a blockchain that is resistant to falsification and traceable, then platform improvement is guaranteed by a move

towards genuine product assurances. This would improve clients' experience by delivering the whole supply chain framework more open and transparent.

4. Additionally, it is trusted that a buyer intellectual framework on cross-line products tracing could be built, furnishing administrative authorities with more far reaching and precise

worldwide vendors and merchandise tracing information. Getting such quality data will be conceivable with coordinated effort estimates, for example, administration support, framework building, and data sharing.

## VII. CONCLUSION

This paper is the main Blockchain framework that proposes a completely functional fake item forgery framework. Without paying any transaction charge, clients of our framework at this point should not be worried about the chance of obtaining a counterfeit item. Accordingly, the proposed framework is valuable for end clients to identify counterfeit items in the inventory network. End client can check QR code allotted to an item and can get all the data like exchange history, current proprietor dependent on which end client can check if the item is counterfeited or not.

## REFERENCES

1. <https://www.mdpi.com/2224-2708/8/3/37/pdf>  
A Comparison Survey Study On RFID Based Anti-Counterfeiting Systems
2. [https://www.researchgate.net/publication/339983307\\_IMPROVING\\_FAKE\\_PRODUCT\\_DETECTION\\_USING\\_AI\\_BASED\\_TECHNOLOGY](https://www.researchgate.net/publication/339983307_IMPROVING_FAKE_PRODUCT_DETECTION_USING_AI_BASED_TECHNOLOGY) (AI)
3. <https://ieeexplore.ieee.org/document/6731643>  
Security With Holographic Barcodes Using Computer Generated Holograms
4. <https://alibabatech.medium.com/blockchain-based-qa-the-end-of-fake-products-in-e-commerce-6f9b28a75735>

## 5. IOT BASED

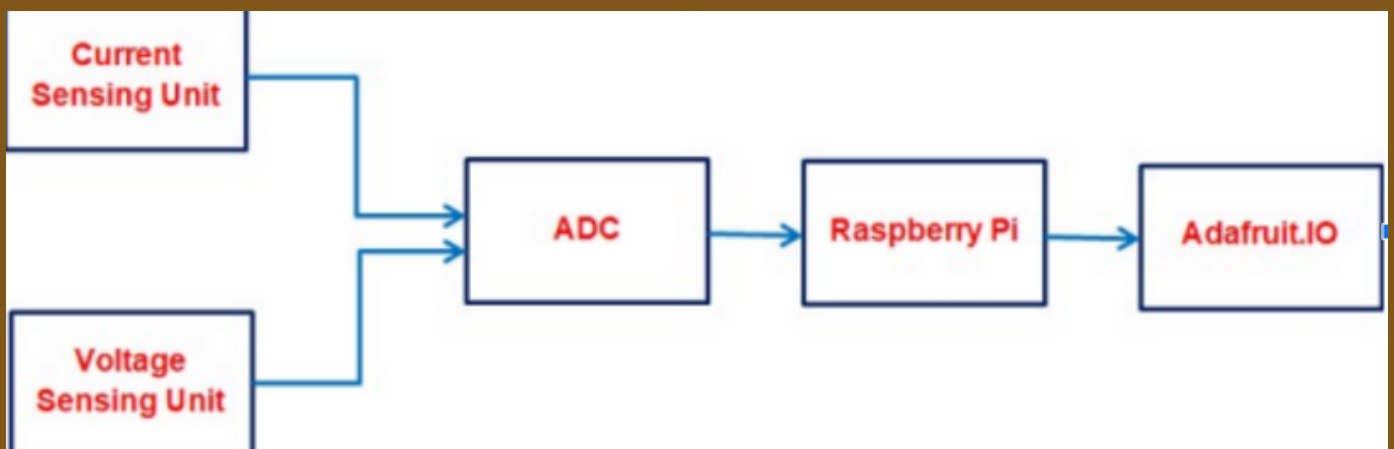
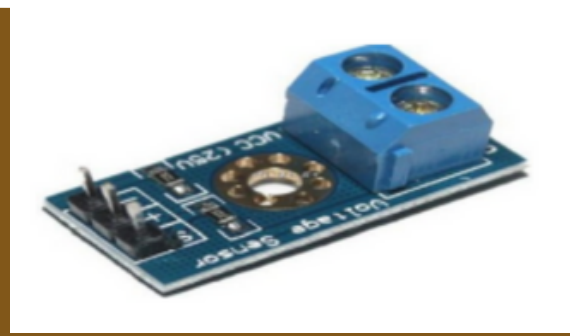
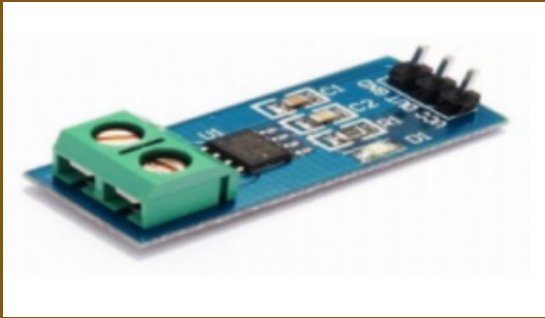
# SMART ENERGY MONITORING

The Internet of things (IOT) concept enables us to connect the normal day to day devices with each other over the internet. The devices connected through IOT concept can be analysed remotely. The IOT concept provides the basic infrastructure and opportunities to form a connection between the physical world and computer based systems. The concept has been gaining importance with more and more wireless devices that are increasing rapidly in the market. hardware devices are connected with each other over the internet. The ESP 8266 Wi-Fi module used in the system provides the connectivity with the internet in the system. Now-a-days the demand for electricity is increasing at a constant rate in the population and is being utilized for various purposes viz, agriculture, industries, household purposes, hospitals etc.,. So, it is becoming more and more complicated to handle the electricity maintenance and requirements. Therefore there is an immediate requirement to save as much electricity as possible. As the demand from the newer generations of population for electricity is increasing so in along with it the technology improvement is needed. The proposed system provides a technical twist to the normal energy meters using the IOT technology. Also there are other issues that we have to address such as power theft which in turn generate economic loss to the nation. Monitoring, Optimized power usage and reduction of power wastage are the major objectives that lie ahead for a better system.

**OBJECTIVES:** Displaying the energy consumption values on the monitor helps in creating awareness about the energy consumed and would help in reducing it. The central server is also able to control the electronic devices by sending control signals to raspberry pi for device on/off, for regulating speed of the electronic devices. The main aim of this study is to design and develop a fully functional capabilities like remote metering, theft detection and controlling the electricity supply to the consumer. The research is about to handle all the information of the consumer regarding energy consumption using a software system. To use the electricity in an optimized manner. Reduce the power wastage. The system basically can be classified on the basis of service ends in two ways: Consumer end and Service end. The data from the system is displayed on a webpage which can be accessed by the consumer.

**STRUCTURE:** The system is designed on an Arduino micro controller. It can be structurally differentiated into two parts viz., controller and a WiFi unit. The controller performs the basic calculations and processes the information. The most important role is played by the Wi-Fi unit to send the information from the controller over the Internet. The Arduino controller is programmed on the Arduino software IDE ( Integrated Development Environment) which is a prerequisite to operate on the Arduino board. Its code is derivative of the python language.

**BLOCK DIAGRAM:** The smart electricity meter using Wi-Fi module can be easily described in two parts. The first part being the physical part and second one being the Webpage. It consist of software requirement and hardware requirements. Software requirement: Raspbian OS  
Hardware requirement: Raspberry Pi 3 or 4, ADS1115 16bit 12C ADC, 2.5A 5V Micro USB Power adapter, 2W 10K resistor (1), 1/2W 10K resistor (2), IN4007 diode (4), Jumper wire, Other accessories for raspberry pi's



**HARDWARE IMPLEMENTATION: CURRENT SENSOR:** The device consists of a precise, low-offset, linear Hall circuit with a copper conduction path located near the surface of the die. Applied current flowing through this copper conduction path generates a magnetic field which the Hall IC converts into a proportional voltage. Device accuracy is optimized through the close proximity of the magnetic signal to

the Hall transducer. A precise, proportional voltage is provided by the low-offset, chopper stabilized BiCMOS Hall IC, which is programmed for accuracy after packaging.

**VOLTAGE SENSOR:** A voltage sensor is a sensor used to calculate and monitor the amount of voltage in an object. Voltage sensors can determine the AC voltage or DC voltage level. The input of this sensor is the voltage, whereas the output is the switches, analog voltage signal, a current signal, or an audible signal. Sensors are devices that can sense or identify and react to certain types of electrical or optical signals. The implementation of a voltage sensor and current sensor techniques have become an excellent choice for the conventional current and voltage measurement methods.

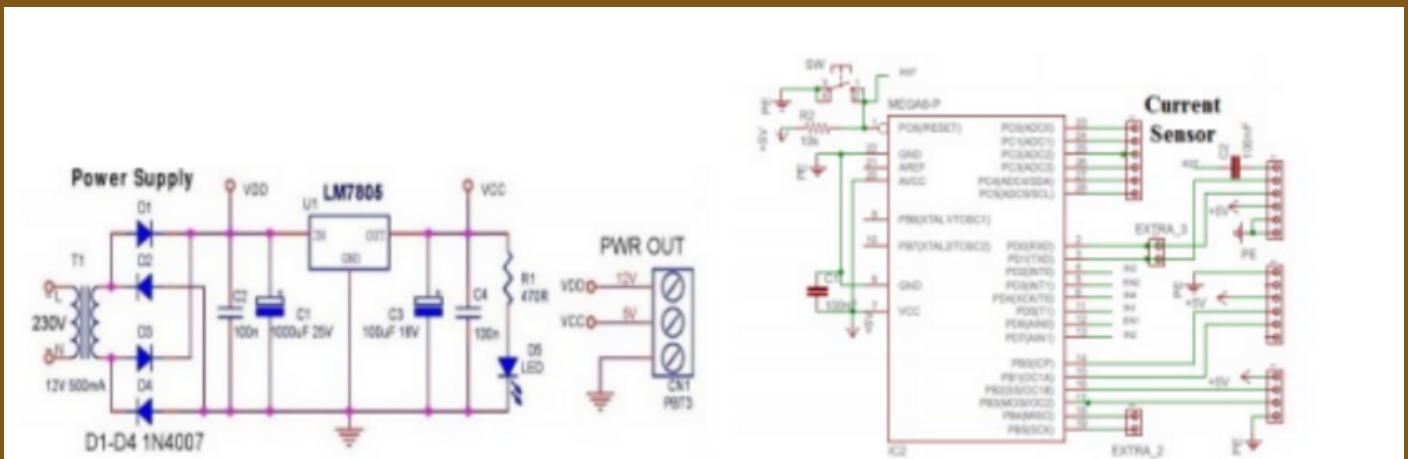
**RASPBERRY Pi:** The Raspberry Pi is a low cost, credit-card sized computer that plugs into a computer monitor or TV, and uses a standard keyboard and mouse. It is a capable little device that enables people of all ages to explore computing, and to learn how to program in languages like Scratch and Python. It's capable of doing everything you'd expect a desktop computer to do, from browsing the internet and playing high definition video, to making spreadsheets, word-processing, and playing games. Raspberry Pi is a small computer that you can use as anything, from a router to a gaming console. Its versatility makes it perfect for IoT projects. You can use any current sensor that can work with Raspberry Pi.

**CIRCUIT DIAGRAM: SCHEMATIC DIAGRAM:**

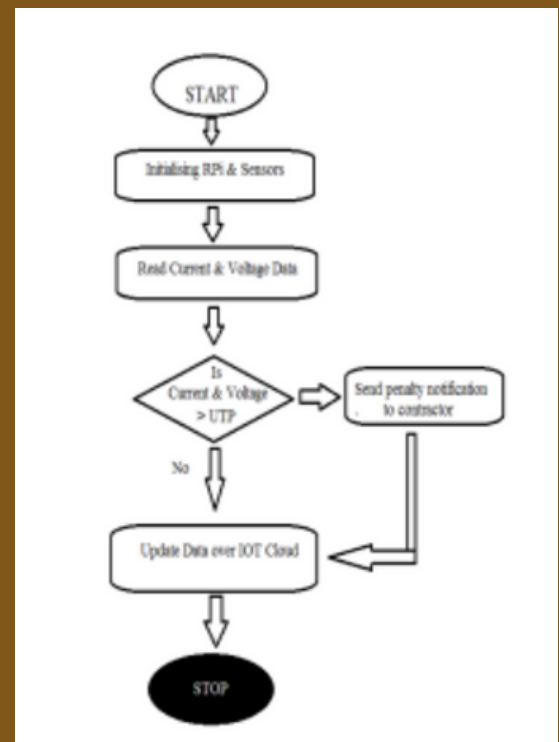
**FLOWCHART: THINGSPEAK GRAPHIC INTERFACE:**

The Internet of Things provides access to a broad range of embedded devices and web services. ThingSpeak is an open data platform and API for the IoT that enables you to collect, store, analyze, visualize, and act on data from sensors or actuators, such as Arduino, BeagleBone Black, and other hardware. The primary element of ThingSpeak activity is the channel, which contains data fields, location fields, and a status field. After ThingSpeak channel is created, you can write data to the channel, process and view the data with MATLAB® code, and react to the data with tweets and other alerts. The typical ThingSpeak workflow lets you: 1. Create a Channel and collect data 2. Analyze and visualize the data





**RESULT:** Firstly we have to switch on the mains. Current sensor senses the power utilized by the load. Which gives output in analog form. The output of the sensor is supplied as input to the analog input part in

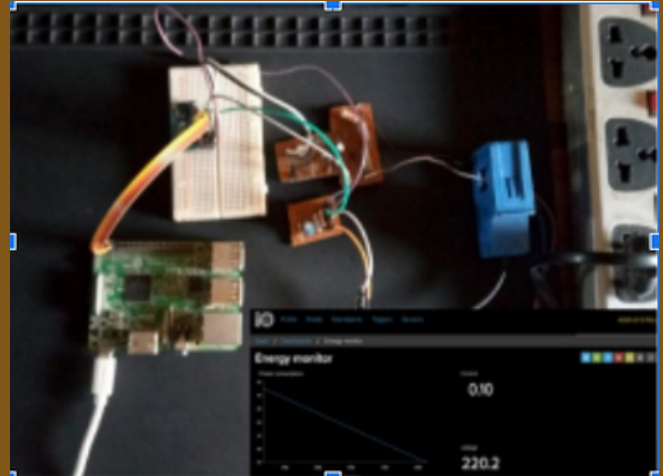


the Raspberry Pi. Raspberry Pi board has inbuilt analog to digital converter which converts analog input of power to digital output.

**CONCLUSION:** Energy Monitoring using IOT is an innovative application of internet of things developed to control home appliances remotely over the cloud from anywhere in the world. In the proposed project current sensor is used to sense the current and display it on internet using IoT. The system updates the information in every 1 to 2 seconds on the internet using public cloud

**THINGSPEAK.** In the present system, energy load consumption is accessed using Wi-Fi and it will help consumers to avoid unwanted use of electricity. IoT system where a user can monitor energy consumption and pay the bill Online can be made. Also, a system where a user can receive SMS, when he/she crosses threshold of electricity usage slab can be equipped. We can make a system which can send SMS to the concerned meter reading man of that area when theft is detected at consumer end. Also using cloud analytics we can predict future energy consumptions.

- Payal Punekar. (BTech , CSE)





# 6 Implementing IoT for Dispensing Sanitary Napkins Using Digital Payment

**Shabina. G. Sayyed<sup>1\*</sup>,**

*Computer Science and Engineering Department  
Karmaveer Bhaurao Patil College of Engineering, Satara.  
Satara, Maharashtra, India.*

Email: [shabina.sayyed@kbpcoes.edu.in](mailto:shabina.sayyed@kbpcoes.edu.in)

**Chinmay Milind Garge**

*Computer Science and Engineering Department Karmaveer Bhaurao Patil College of Engineering, Satara,  
Maharashtra, India.*

Email: [gargechinmay1025@gmail.com](mailto:gargechinmay1025@gmail.com)

**Anagha Umesh Nimbalkar**

*Computer Science and Engineering Department Karmaveer Bhaurao Patil College of Engineering, Satara,  
Maharashtra, India*

Email: [anaghanim@gmail.com](mailto:anaghanim@gmail.com)

**Chinmay Milind Garge**

*Computer Science and Engineering Department  
Karmaveer Bhaurao Patil College of  
Engineering, Satara, Maharashtra, India.*

Email: [gargechinmay1025@gmail.com](mailto:gargechinmay1025@gmail.com)

**Anagha Umesh Nimbalkar**

*Computer Science and Engineering Department  
Karmaveer Bhaurao Patil College of  
Engineering, Satara, Maharashtra, India*

**Shubham Deepak Nikam**

*Computer Science and Engineering Department  
Karmaveer Bhaurao Patil College of  
Engineering, Satara, Maharashtra, India  
nshubham421@gmail.com*

**Sahil Sikhandar Shaikh**

*Computer Science and Engineering Department  
Karmaveer Bhaurao Patil College of  
Engineering, Satara, Maharashtra, India  
sahilshaikhsss786@gmail.com*

**Abstract—** A major lifestyle change that sets women apart are their monthly periods and even though it's called "Menstrual Cycle", it may vary by a couple of days and it may not be certain that an individual finds the desired product in the organisational premises. The Crimson Project works on creating sufficient awareness of menstruation and related hygienic aspects leading to an all-over awareness of using the right sanitary products during periods.

This plan stimulates the evolving technology to make the process of dispensing sanitary napkins in organizations efficient.

A simple process of UPI payment transaction to initiate automatic dispensing benefits the user in maintaining high hygienic measures during the current situation of a global pandemic.

**Keywords—**Menstruation, IoT, Cloud Computing, UPI, Vending Machine, Sanitary Napkins.

## INTRODUCTION

According to a survey analysis by [downtoearth.org.in](http://downtoearth.org.in) only dispensing process flexible. 18% of the Indian female population is accounted for in using proper sanitary products during periods.[1] Further, [swachhindia.ndtv.com](http://swachhindia.ndtv.com) states that nearly 23 million girls drop out of school every year when they start menstruating.[2] Even in the urban regions, the awareness regarding menstrual hygiene is less than 50%. Due to inadequate knowledge girls tend to neglect the various disturbing symptoms that may follow menstruation. This negligence may cause illness in the future. That is why proper aid at the right time is necessary.

The Crimson Project has mainly two domains web development and IoT.

### **Website:**

The website comprises of different modules that cover up the important aspects through well-versed content resulting in filling the cracks of misconceptions with write ups enriched with menstrual hygiene, written, and advised by medical professionals.

The 'Buy Product' module works just like an e-commerce website where an individual can select his desired product and perform online payments making the dispensing process flexible.

Being a part of someone's gratitude journal must be major 'to be' goals. Helping for a cause that you believe in will not only help the organization towards their motive but also favour you in an optimistic perspective. Assisting users in finding their nearest Gynaecologist to get them right consultancy through one-on-one appointments.

### **IoT:**

The executions of these layers are sub-divided into four stages:

Sensors have the remarkable feature of acquiring information from the external world and converting it into data for analysis. Data is the fundamental element for the execution of any process, making sensors a major component of the IoT architecture.

As sensors are used to comprehend the environment, similarly actuators are used to make changes in the environment, on acquiring required responses. We can say that sensors take the input and actuators on preferred responses make changes in the system thus giving out outputs. Internet Gateways and Data Acquisition Systems form the second stage.

The significance of this stage is to process the huge data collected at the previous stage and compress it to an optimal size for further reasonings.

Data Acquisition Systems are used to connect the sensors and output systems. Internet Gateways service through LANs or over Wi-fi.

Edge IT is the third stage of IoT. As the name suggests 'Edge Computing' is computing that is executed at or near the source of data. This assists in avoiding performing all executions at one of the cloud data centres. It doesn't eliminate the cloud stage but declares the arrival of cloud. The processes prior to entering the data centres like machine learning and data visualizations are performed at this stage.

Data Centre and Cloud is the last stage of IoT architecture where in-depth processes are performed at the data centres or cloud. This stage requires analytical skills of advanced levels building a need of acquiring data from other sources. When the tasks are executed the processed and analysed data is sent back to the physical world.

### **Device: Raspberry Pi 0W**

### **Sensors: Proximity IR sensor, keypad**

### **Actuators: 12v DC motor, pump motor, 16x2 lcd display**

### **Driver: LN298**

### **LITERATURE SURVEY**

*Internet of Things is a revolutionary approach for future technology enhancement.[3]*

The Internet of Things, often referred to as IoT, is one of the fastest-growing automation. It is a network of physical "things" associated with software, sensors, and other technologies that combined, serve the purpose of exchanging data over the internet.

Due to the availability of cheap computer chips, transforming any physical object into an IoT device has become easier. As a matter of fact, an item as small as a button to a township sizing in acres, anything can be a part of IoT. Thus, increasing the range of the IoT world. The generalization of smart devices has contributed to improving the efficiency of human life.

#### ***Unified Payment Interface—An Advancement in Payment Systems[4]***

Unified Payment Interface (UPI), is a payment system introduced by National Payment Corporation of India. It is a mobile centric, real time interbank payment system. This paper studies the technology used in UPI and focuses on the aspects of its architecture and security systems via empirical and theoretical literature review. UPI can help bring a huge part of the population within the scope of digital economy, resulting in becoming a great tool for financial inclusion in India.

#### ***A Review Paper on Cloud Computing.[5]***

Cloud Computing refers to the concept of storing and accessing data and other computing services over the internet. Using cloud computing, we can store data on remote servers that are easily accessible through the internet. Users nowadays prefer tailor-made access to the data over their own physical infrastructures. For using the services provided by datacentres the users are charged only for the services that they use. Youtube, Facebook. Gmail, etc are examples of cloud computing that we use in our day-to-day lives.

#### ***Existing System:***

Though the existing system does the befitting job of dispensing sanitary napkins, updation is inevitable. The architecture of the current machine comprises of a metal box with a coin slot and a hand-driven mechanical lever that is used to direct out the product only after appropriate cash transaction.

The latest modification in the machine is the adaptation of an IoT device that controls the movement of an electronic motor, accomplishing the motive of automatic dispensing. Yet lacking in other major concerns regarding the availability of more than one type of product and fluid online transactions.



**(Fig.1) Existing Machine Front View**



**(Fig. 2) Existing Machine Side View**

This existing system has the benefit of hard cash transaction but at times of not having customary cash this feature can become a major problem. Being operated using mechanical lever makes the system software independent resulting in near zero chances of system failure. One of the major drawbacks of this system is the lack of variety in products. Also, the end users aren't properly acquainted with the product availability. Furthermore, this system majorly lacks in hygiene measures.

#### PROPOSED WORK

The Crimson Project overcomes the above-mentioned problems in a rather efficient manner us. The first and foremost step for a dynamic system is collecting vast data to increase its capability. The initial stage consists of gathering the elemental information of the users via a registration form. This will ensure the user has an exclusive experience. The solid function of the project being dispensing the desired product, the user is expected to select an item. Prior to the selection of the item, the data regarding the availability of products is fetched. The main aspect of technology is to minimise human efforts.

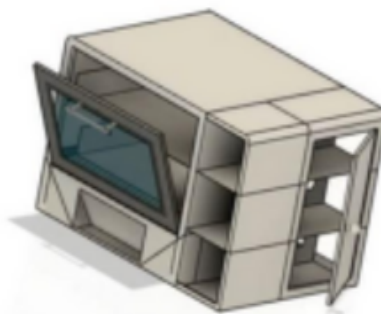
Cashless transaction is one of the pragmatic technologies that are currently in use. Using it the plan not only technically elevates the project but also attends to a swift user interaction. Once a product is added to cart, the user is supposed to complete the payment through UPI transaction. The successful payment transaction notification will be sent to the machine via cloud computing.

When the microcomputer receives an appropriate signal, the belonging product will be dispensed. This program is social concept to cultivate sensible thoughts in the minds of users. Letting the user discover blogs by health professionals, for busting myths and enriching their conceptions about menstrual hygiene. Also, helping them to reach out to their nearest gynaecologist.

To promote the welfare of rural women, A user with their bare minimum donation can help at least one woman to get a sanitary napkin.



**(Fig. 3) Proposed System Front View**



**(Fig. 4) Proposed System Side View**

#### SYSTEM FEATURES

##### Advantages:

- Contactless process.
- No issues regarding loose change as online payment mode will be used.
- 4 different sizes of products.
- Automatic dispensing of desired product.

##### Limitations:

- Requires internet connection.
- Only online payment transactions.

#### SYSTEM EXECUTION STEPS

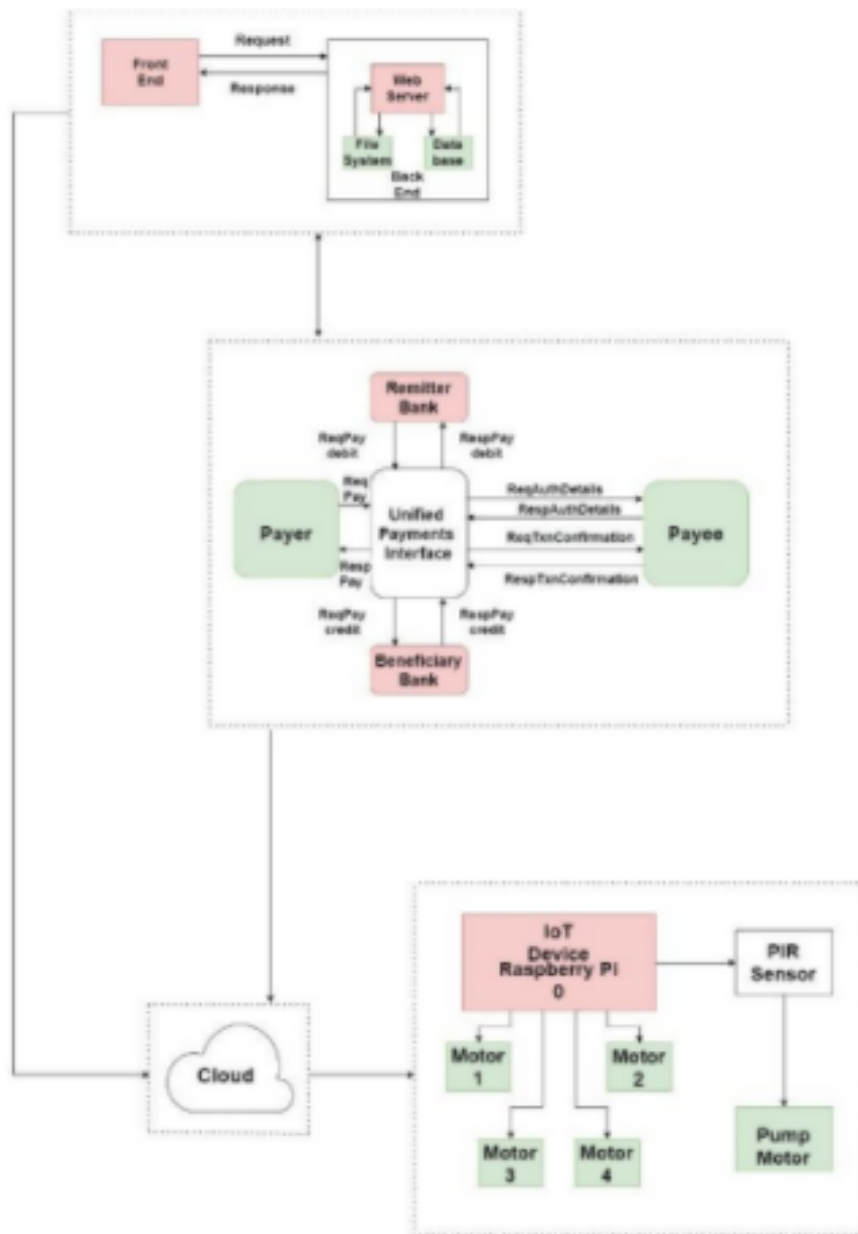
#### Client Side:

- Scan QR code that directs the user to our website.
- Here the user can select the desired product.
- After confirming her choice, the user is supposed to pay the required amount using UPI payment method.
- Once the transaction is completed the user can collect the product from the Crimson Vending Machine.
- To be more hygienic user can utilize the sanitizer dispenser.

#### Server Side:

- When the payment transaction for the user's preferred product is successful, a request to dispense the product will be sent to the IoT device via personal server.
- The Raspberry Pi 0 then processes the request and rotates the appropriate motor.
- We have also provided a facility where the admin can input the number of refilled products via a keypad.
- A PIR sensor is installed in the machine that recognizes an object to pump out sanitizer using pump motor.

#### ARCHITECTURAL DIAGRAM



(Fig. 5) Architectural Diagram for Crimson

#### CREQUIREMENT ANALYSIS

Software requirements: Visual Studio,

Hardware requirements: Raspberry pi, Servers, Servo Motors

OS Requirement: Raspbian

#### FUTURE SCOPE

1. Integrating other methods for payment.

2. AI to predict future cycle dates.
3. Adding other sanitary products.

#### CONCLUSION

To tackle the problem of lack of awareness of menstrual hygiene and to eliminate the issue of lack of access of right sanitary products in institutional organizations, the Crimson project is a satisfactory solution.

#### REFERENCES

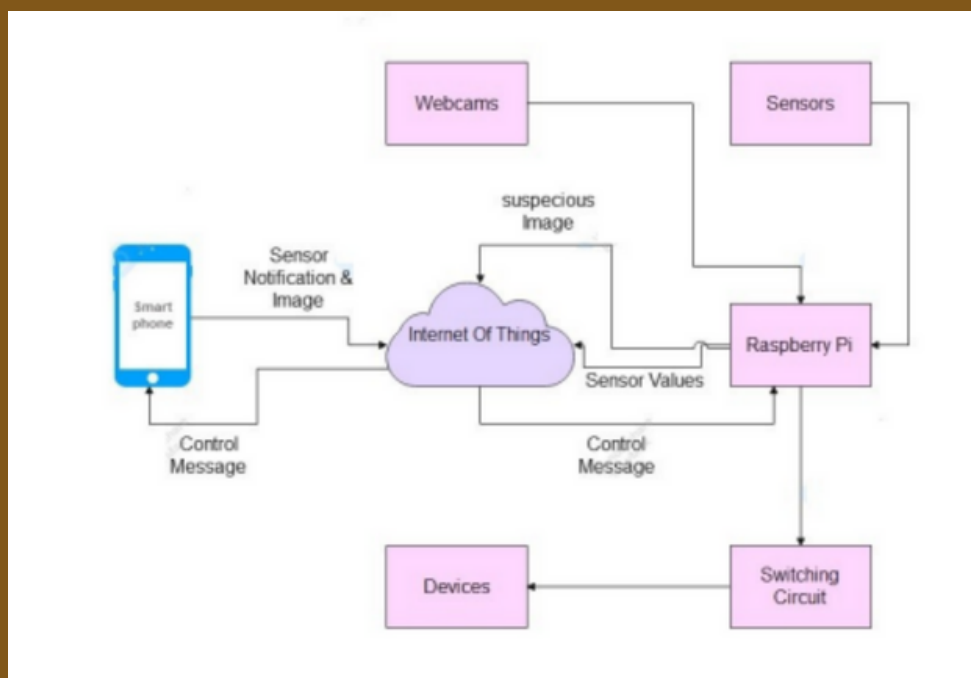
1. <https://www.downtoearth.org.in/blog/health/menstrual-hygiene-a-challenging-development-issue-66973>
2. <https://swachhindia.ndtv.com/23-million-women-drop-out-of-school-every-year-when-they-start-menstruating-in-india-17838/#:~:text=23%20Million%20Women%20Drop%20Out,Menstruating%20In%20India%20%7C%20Women's%20Day>
3. <https://journalofbigdata.springeropen.com/articles/10.1186/s40537-019-0268-2> 4. <https://doi.org/10.4236/ajibm.2017.710084>
5. (PDF) A Review Paper on Cloud Computing (researchgate.net)



# 7 HOME AUTOMATION SYSTEM

The Internet of Things is a technology of the future that has already begun to run out of our homes. Here we present a home automation system based on Internet of Things with the Raspberry pi, which allows electrical household appliances and allows the user to easily control all over the Internet from anywhere in the world. It's a system that we provide is a micro-controller based circuit with a light bulb and fan are connected, and an LCD display, and a Wi-Fi network is connected to the raspberry pi. Our system works with the online IOT system and provides a free IOT Gecko web-based interface for easy management of machines and equipment. When combined with the Gecko IOT, the user is able to send IOT tax switch jobs for our rules.

The scheme is to receive commands over the internet to connect to the Internet via a Wi-Fi connection, and then to the raspberry pi processor is to process the command. After that, the processor, which is now included with these instructions for the receipt of orders. These are then displayed on the LCD screen. It also controls the load to turn it on/off according to the user commands. In this way, the automation of home appliances over the Internet using a raspberry pi.



This article presents a self-propelled, though, the use of an Android application to help you manage and protect appliances from solar radiation. This plan will be the subject of the Internet of Things .In the house of the software in each device, and the home is built once, and works with no human intervention. In this context, the Raspberry Pi 4 and along with a number of sensors that can assess the air temperature, evaporation, and light, of energy, etc., etc.

The sensors were used to gather the information that will be stored in the data warehouse , and is an example of the analysis of the deferred tax details will be used to tell the client what cars are usually turned on or off, so that they can operate without any human intervention, taking into account the typical pattern of use. In addition, it may be that the client is in the on / off switch on the remote, and with the help of a mobile application and a web server.

## 8 KrishiMitra: Innovative and Sustainable

Approach Towards Site Specific Agriculture

Tarannum Sayyad<sup>1</sup>, Shweta Poojari<sup>2</sup>, Ritvika Pawar<sup>3</sup>, Samrudhi Shinde<sup>4</sup>, Supriya Magar<sup>5</sup> Assistant

Professor, Department of Computer Science and Engineering<sup>1</sup>

Students (B. Tech), Department Of Computer Science and Engineering<sup>2,3,4,5</sup>

Karmaveer Bhaurao Patil College of Engineering, Satara, India

**Abstract:** *In recent years, there has been a significant development in precision agriculture. Technological advancements made in monitoring, supervision, management, and control framework have opened another period in which numerous conventional agrarian practices are outdated. Automated aerial vehicles end up being one of these methods and are broadly utilized across industries as more organizations begin to perceive its potential uses and scale of global reach. This research paper proposes the prototype of using a smart hexacopter for spraying the pesticides. It discusses the hardware and software application process, the flight of the drone is remotely controlled via an Android application which also includes a GPS Navigation System. This application allows the operator to select the points of the field through a map and thereby the hexacopter takes off then hovers and ultimately sprays the fertilizers on the destination location.*

Keywords: UAV (Unmanned Aerial Vehicle), Drone, Pesticides, Agriculture, IOT.

### I. INTRODUCTION

Agriculture in India establishes over 60% of occupation. It serves to be the base support of the Indian Economy. The Indian Agricultural area is the main area as it adds up to 18% of India's Gross Domestic Product (GDP) and furthermore gives work to 50% of the National human workforce.

Our nation is dependent on farming a lot and yet can't seem to take advantage of the real potential of agriculture. It is very essential to improve the productivity and efficiency of agriculture by providing safe cultivation to farmers. The various operations like the sprinkling of pesticides and fertilizer are very important for crop yield.

Currently, the farmers spray pesticides throughout the farm with spray bags. Despite the fact that spraying pesticides has become mandatory it additionally ends up being an unsafe procedure for the farmers. Farmers especially when they spray fertilizer, take too many precautions like wearing proper outfit masks and gloves. It will avoid any unsafe impact on the farmers. Staying away from the pesticides is likewise not totally conceivable as the necessary outcome must be met. According to a survey conducted by WHO (world health organization) it is estimated that every year about 3 million workers are affected by poisoning from pesticides.

This project intends to overcome the harmful impact of pesticides and fertilizers on farmers and furthermore to spray pesticides over large regions in a short time, contrasted with traditional spraying by utilizing an automatic fertilizer sprayer. This device is a combination of spraying mechanism on a hexacopter frame. It will consist of an ultrasonic sensor that will detect the obstacles and flight height of the drone from the field. This drone will be controlled by an android application and can also be automated, providing the coordinates using a GPS module.

### II. LITERATURE SURVEY

The paper entitled 'Automatic Aerial Vehicle Based Pesticides Spraying System for Crops' [1], describes how Aircraft are becoming increasingly popular as demands for increasing population and agriculture are being met. With the correct cameras, indicators, and components, Drones will add to a basic, viable, and precise cultivation. The solutions proposed for these drones can help improve things even further if they are integrated into various machine learning concepts and

1. Farmer's Well-Being: These agricultural sprayer drones will shield farmers from harmful poisons and heatstroke while spraying fluid pesticides, fertilizers, and herbicides on farming areas.
2. Environmental Protection: Environmental contamination is seriously decreased with the fixed position and orientation technique of the drone.
3. Precision Spraying: Pesticide spraying efficiency is better. UAV rotor can deliver an enormous spin power, to advance pesticide drops on the yields through and through to enter, it prompts pesticide drops dispersed equally in all parts, with the goal that accurate spraying.
4. Feasibility: Easy to use and long life to use, low maintenance cost, easy to replace wearing parts.
5. Wastage Reduction: Due to an immense degree of atomization while spraying, 30% of pesticide is saved.

#### VI. FUTURE SCOPE

1. The weight lifting limit of the multicopter can be expanded by expanding the sum of motors or by expanding the propeller size or by expanding the rpm of the motor.
2. Flight time can be broadened by expanding the battery capacity.
3. Pesticide container limit can be expanded by expanding the capacity of the tank and heavy lifting motors.
4. Bigger territory can be covered in less time by utilizing more number of nozzles which can be organized as clusters.
5. The Angle of spraying can be controlled for accuracy in spraying.
6. Under the current COVID19 Pandemic circumstance, it tends to be utilized to sanitize huge hotspots zones without actually going there.

#### VII. CONCLUSION

By successful implementation of this project effective spraying of pesticides can be attained. It is highly significant as pesticide poisoning is a serious cause of catastrophic impact and diseases among farmers. This exposure to toxic pesticides and fertilizers on farmers can be avoided. Also, it is a step toward precision agriculture. This can also be used in places where the labor force is hard to find. This strategy for spraying pesticides on Agricultural fields lessens the amount of work, time, cost, and risk involved to the personnel involved in spraying the liquids. These IoT solutions will improve farming methods and result in more production and better utilization of resources.

#### ACKNOWLEDGEMENT

We take this opportunity to offer our significance thanks to our guide Prof. Tarannum Sayyad for her exemplary guidance and consistent support throughout project. She has been a source of motivation and her vision have made it workable for us to seek after and comprehend the development and made this project conceivable.

#### REFERENCES

- [1]. Madhukar S. Chavan, (2019). Automatic Arial Vehicle Based Pesticides Spraying System for Crops. International Journal of Innovative Technology and Exploring Engineering (IJITEE) ISSN: 2278-3075, Volume-8 Issue-11, September 2019
  - [2]. S. R. Kurkute, B. D. Deore, Payal Kasar, Megha Bhamare, Mayuri Sahane, 2018. Drones for Smart Agriculture: A Technical Report. International Journal for Research in Applied Science & Engineering Technology (IJRASET) ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887 Volume 6 Issue IV, April 2018
  - [3]. Akshay Mehta, Monish Masdekar, 2018. Precision Agriculture – A Modern Approach To Smart Farming. International Journal of Scientific & Engineering Research Volume 9, Issue 2, February-2018
  - [4]. Abdel Rahman H. Hussein, 2019. Internet of Things (IOT): Research Challenges and Future Applications. (IJACSA) International Journal of Advanced Computer Science and Applications, Vol. 10, No. 6, 2019
- Copyright to IJAR SCT DOI: 10.48175/IJAR SCT-1352 16 www.ijarsct.co.in

## 9 Smart trolley for shopping using RFID



Now a day world is in a digital era .In most of the fields like medical, education , business also in day-to-day life we use technology. One of the examples of digital technology that we are presenting in this article is smart trolley using RFID.

In old days we use normal trolley for shopping but in earlier digital world the smart trolley is best method to do shopping as it avoids standing in long queue whereas in smart trolley system there is facility to payment where we can scan product code that adds or remove the amount of product and at last that gives us total bill regarding our shopping.

During the last decade the commercial use of RFID has been growing rapidly all over the world. We use RFID is a technology that uses radio waves to track, capture, identify transfer data efficiently without human intervention RFID – gathers data about a certain object without touching it or seeing it stage & forwards the information to a host computer.

When customer comes to the shopping mall or D mart & takes smart shopping trolley it consists of RFID reader, raspberry PI, weight sensor, Arduino NANO & LCD display. It functions as when customer put the items into smart cart, the RFID reader will read the information & send to raspberry PI though Arduino NANO, raspberry PI compares the tag information with database already stored in SD card at last display the information of products on LCD display.

This process repeated till the client's shopping finishes.

There are two buttons provided on trolley for add or remove the products from the trolley after adding all the products to the trolley then move for further shopping. client can directly pay the payment& come out of shopping mart.

It avoids standing in long queue for product checking & for payment.

The result is produced is that in smart trolley system, now there is no need for the customer to wait in the line and wait for his/her turn for the scanning of the product items. It does not require special training. The man power is decreased and will save time that the user spends in billing line. Time efficiency and cost efficiency are guaranteed by the this smart trolley system.

-Prof.Monika Sonmale  
Vaishnavi Chavan  
Nikita Mane  
Aditya Jadhav  
Rutuja Kadam

# 10 Blockchain Technology

Blockchain is one of the most important technical invention in the recent years. Blockchain is a transparent money exchange system that has transformed the way a business is conducted. Companies and tech giants have started investing significantly in the blockchain market and it is expected to be net worth of more than 3 trillion dollars in next 5 years. It has become growing popular because of its irrefutable security and ability to provide complete solution to digital identity issues. It is a digital ledger in a peer to peer network.

Blockchain technology is most simply defined as a decentralized, distributed ledger that records the provenance of a digital asset. By inherent design, the data on a blockchain is unable to be modified, which makes it a legitimate disruptor for industries like payments, cybersecurity and healthcare.

Blockchain is database that stores encrypted blocks of data then chains them together to form a chronological single source of truth for the data. Digital assets are distributed instead of copied or transferred, creating an immutable record of an asset. The asset is decentralized, allowing full real access and transparency to the public. A transparent ledger of changes preserves integrity of the document, which creates trust in the asset. Blockchain inherent security measures and public ledger make it a prime technology for almost every single sector.

Although blockchain is a new technology, it already boasts a rich and interesting history. In year 2008, an individual or group writing under the name of Satoshi Nakamoto published a paper entitled "Bitcoin: A Peer-To-Peer Electronic Cash System". This paper described a peer-to-peer version of the electronic cash that would allow online payments to be sent directly from one party to another without going through a financial institution. Bitcoin was the first realization of this concept. Now word cryptocurrencies is the label that is used to describe all networks and mediums of exchange that uses cryptography to secure transactions-as against those systems where the transactions are channel through a centralized trusted entity. The author of the first paper wanted to remain anonymous and hence no one knows Satoshi Nakamoto to this day. A few months later, an open source program implementing the new protocol was released that began with the Genesis block of 50 coins. Anyone can install this open source program and become part of the bitcoin peer-to-peer network. It has grown in popularity since then.

The whole point of using a blockchain is to let people in particular, people who don't trust one another share valuable data in a secure, tamperproof way.

Blockchain's most well-known use (and maybe most controversial) is in cryptocurrencies.

Cryptocurrencies are digital currencies (or tokens), like Bitcoin, Ethereum or Litecoin, that can be used to buy goods and services. Just like a digital form of cash, crypto can be used to buy everything from your lunch to your next home. Unlike cash, crypto uses

blockchain to act as both a public ledger and an enhanced cryptographic security system, so online transactions are always recorded and secured.

Blockchain has a nearly endless amount of application across almost every industry. The ledger technology can be applied to track fraud in finance, securely share patient medical records between healthcare professionals and even acts as a better way to track intellectual property in business and music rights for artists.

Blockchain is a revolutionary concept as it has been successfully able to bring the transparency among the users and has become a game changer for many industries. Blockchain encourages entrepreneurship by destroying corruption and breaking down the walls of bureaucracy and establish the ownership of common mass. This peer-to-peer technology has opened the door to new possibilities and has provided a personal ground for economic empowerment. It is too early to say what lies ahead, but the future of blockchain looks promising and it can be concluded that blockchain technology is here to stay.



# 11 GENERATION OF STARTUPS

## **GENERATION OF STARTUPS**

Startups are one of the greatest forms of organizations to make world a better place for living. Startups has the potential to transform the old market by introducing innovative ideas and technologies that can change the world. Today's tech giants such as Google, Amazon, Facebook, Apple were once a small organization with some revolutionary ideas. Startups with effective ideas, good workforce, right planning and implementation grow rapidly. Such rapidly growing organizations then play a greater role in development of the nation as well as change the world innovation environment.

### **Why startups?**

Startups, a new entrepreneurial ecosystem is also considered as a growth engine. This ecosystem plays a very significant role in country's development in many different aspects. Some of which are discussed below.

### **Increase in employability rate:**

Though startup begin with a small-scale basis, however when it gets converted into big firms and organizations it needs a workforce to run the organization efficiently, resulting in increased job opportunities in that area. As per Progressive Policy Institute's 2017 report, growth rate of private sector jobs is remarkably high in the areas with high startup activity.

### **Economic prosperity**

Innovative startups attract investors from all over the world. This invested money is then used to maximize profits by using recent technologies which decreases time consumption and eventually increases productivity. It also increases consumption and thus rise in GDP takes place.

### **Enhanced standard of living**

One of the motives of startups is to bring ease in existing ways of day-to-day execution of tasks. This requires innovation and use of recent technologies and provides the best service possible to the people. These services with modern technology increase standard of living of the people.

### **Create new markets**

Startups focus on unorganized part of everyday life, organize them with their unique ideas and deploy them to consumers. Best recent examples of such startups which now have bigger network are Paytm, Zomato, Ola, Oyo. These have totally created new markets for their targeted customers.

### **Research and Development**

To make an organization work successfully, thorough market research has to be done. Which leads to better understanding of the industry. This helps companies to produce more innovative products and make improvements in existing product line. This forms a competitive environment and thus make organization invest in research and development.

As per the studies conducted, 50% of the world population is below the age of 35, forming the largest number of workforces. As the youth plays a key role in shaping the world economy it is essential to organize such large workforce. Thus, young people should be encouraged to develop business skills and creative thinking regardless of their field of study. There are no limitations to by whom the startups can be formed. Anyone anywhere with an ingenious idea can succeed in forming a great organization with huge customer network. Even a small problem can act as a big opportunity to grow a startup by finding innovative solution for the situation. Startup organizations is therefore emerging as a ray of hope for underdeveloped countries, helping developing countries to make progress and developed countries to turn into world superpowers.