Grenze International Journal of Engineering and Technology, June Issue

A Novel Approach on ML based Palmistry

Kazi Kutubuddin Sayyad Liyakat
Department of Electronics and Telecommunication Engineering, Brahmdevdada Mane Institute of Technology, Solapur, Maharashtra, India
Email- drkkazi@gmail.com

***Abstract*— All of palmistry is based on faith. Some people accept forecasts about the future and human traits, while others do not. Palmistry is the practise of claiming to be able to characterise someone and predict their future by analysing their palm. The Predictions made are based on colour of the palm, spacing between the fingers, the length of the fingers, the mounts, the position & length of the palm lines, and a number of other aspects of the palm. This system shows image processing programme that can be helpful in field of palmistry to foretell a person's character or their destiny. The development of the Palmistry's Predictions are based on edge detection & recognition. This designed system also uses morphological operations. The system adds a clever edge detection technique to the input photos to extract the primary lines from the image of a human palm and identify certain features in the image. The main line patterns used in palmistry are condensed into models that can be used to predict the future through palm reading. It compares specific aspects in photos to a palmistry knowledge base and displays predictions. ML has certainly enhanced the practice of palmistry, it is essential to note that it is not meant to replace human palm readers. Instead, it should be seen as a tool that can aid palm readers in making more accurate predictions. Human intuition and empathy cannot be replicated by machines, and these qualities are crucial in palmistry. Therefore, it is essential for palm readers to embrace ML and use it as a tool to enhance their skills, rather than see it as a threat to their profession. However, with the advancement of technology, palmistry has also evolved. One such technological tool that has been used in palmistry is the Canny edge detector. The use of canny edge detector in palmistry is an innovative and modern approach to an ancient practice. It offers a more accurate and efficient way of analyzing palm lines, which can be beneficial for both palmists and those seeking guidance through palmistry. It should be highlighted, though, that algorithm remains in its nascent stages of development and should not be solely relied upon for important decisions in life. As with any form of divination, palmistry using canny edge detector should be approached with an open mind and a healthy dose of skepticism.**

***Index Terms*— Palm Print, Palmistry, Canny Edge, Hough Transform, Morphological Operation, ML,**

I. INTRODUCTION

The practise of palmistry has roots in Roma fortune-telling, Chinese, and Indian astrology. We can infer that palmistry was highly well-liked in India at that time from the old records still present in the murals in Indian ruins and words passed down from Brahmanism. Palmistry has a lengthy history in China as well. It has been in place since the Zhou Dynasty, or over three thousand years before. The Western Han Dynasty (202 BC–9 AD) saw the publication of Xu Fu's palmistry treatise, which is considered to be the first comprehensive and systematic

Grenze ID: 01.GIJET.10.2.393

palmistry study in China.
People now make an effort to use palmistry to predict their potential future and existing state of affairs. The human palm is the most accurate way to tell the tale of a person's history, present, and future (Figure 1). The shape, texture, and lines within human hands were studied by many ancient cultures (Figure 1). We may forecast someone's character qualities, money, wisdom, career, marriage, and a lot more things by reading their palm line, hand form, finger length, and fingernail. The science of palmistry makes inferences about a person's nature from various observations of the human palm [1-4]. The application of palmistry can help people find their life's purpose and provide light on sensitive subjects like their health, finances, and families. In order to empower you to take charge of your destiny, a palmist can inform you about yourself. Digital computer can recognise and analyse images from various external devices. Image processing refers to the processes employed to provide digital computers perception. Instead of receiving a typical face-to-face palm reading, users of said palmistry prediction system submit photos of their hands and receive quick forecasts. Additionally, palm detection is used in fields such as gesture recognition, personal identity, and authentication. The goal of this system is to learn about image processing techniques, particularly the clever edge detection algorithm. Because of its consistent and distinctive properties, the palm print is one of the more recent physiological biometrics. One of the most effective methods for personal identification and verification is the rich texture information found in a person's palm print[5-10].
Although palmistry is not a form of fortune telling, it is a method that can reveal information about who you are and your personality. It is possible to analyse how much our thoughts and feelings affect our pleasure and the peace of people around us through the study of palmistry. An age-old method of studying the hand palm involves analysing the characteristics of fingers, fingerprints, fingernails, & the well-known hand's line reading method. However, many uninformed observers of hand contend that lines are simple flexure wrinkles that permit the hands to open and close. As a result, palmists have found that lines are rarely constant and frequently change. Observation shows that line can & does alter in quality, length, and appearance, and that no two hands ever exhibit identical formation. Lines, and textures of the palm are traditionally observed visually by human eye; however, since everyone has a varied depth of sight, this method may result in errors in percentage accuracy. Additionally, it takes time and experience to make any firm predictions. The colour reflected from palm can be measured using a sophisticated image processing technique thanks to advancements in computer and vision technologies. These numbers can be analyzed for more experimental palmistry study.

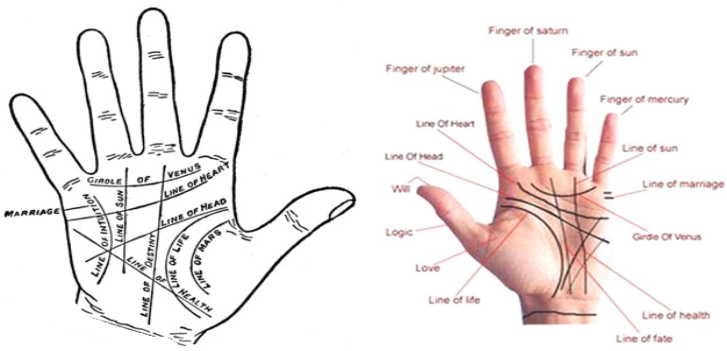


Figure 1 -Palmistry theory & related lines

Based on the main ridges, lines, and wrinkles on the palm's surface, biometric palm prints can identify a person. These line configurations are constant throughout a person's lifetime and are stable. Three flexion creases, secondary creases, and ridges are typically present on the inner surface of the. Principal lines and wrinkles are other names for the flexion creases and secondary creases, respectively.
Palmistry, also known as chiromancy, is an ancient practice that involves studying the lines and shapes of the hand to predict a person's future and personality traits. It has been used for centuries as a means of divination and self-discovery. However, with the advancements in technology and the rise of machine learning (ML), palmistry has taken on a whole new level.
Machine learning (ML)[11] is a subfield of artificial intelligence[12,13] that enables computers[14] to learn and predict without explicit programming[15]. It is applied in a number of industries, including marketing, healthcare, and finance[16]. And now, it has made its way into the world of palmistry. So, how does ML[17] enhance the practice of palmistry? By analyzing patterns and data from thousands of hands, machines can now accurately predict a person's future and personality traits based on their palm lines and shapes. This eliminates the subjective interpretation of palmistry, making it more scientific and reliable[18,19].

One of the biggest advantages of using ML in palmistry is the speed and accuracy with which it can analyze data. While a human palm reader may take hours to analyze a person's hand, a machine can do it in a matter of seconds. This not only saves time but also reduces the chances of errors. With ML, there is no room for human biases or misinterpretations, making the predictions more reliable.

Another benefit of using ML in palmistry is that it can process a vast amount of data. In traditional palmistry, palm readers would rely on their knowledge and experience to make predictions based on a few hand features. But with ML, machines can analyze multiple hand features, such as the shape of the hand, fingers, and palm lines, to make more accurate predictions. This means that the predictions are not based on a few features but on a combination of several factors, making them more reliable[20].

Moreover, ML in palmistry has the potential to make the practice more accessible to people. Traditional palmistry requires a skilled palm reader to interpret the lines and shapes on a person's hand. This can be limiting, as not everyone has access to a palm reader. But with ML, anyone with a smartphone or a computer can get their palm read. There are already several palm reading apps and websites that use ML to give accurate predictions[21].

While ML has certainly enhanced the practice of palmistry, it is essential to note that it is not meant to replace human palm readers. Instead, it should be seen as a tool that can aid palm readers in making more accurate predictions. Human intuition and empathy cannot be replicated by machines, and these qualities are crucial in palmistry. Therefore, it is essential for palm readers to embrace ML and use it as a tool to enhance their skills, rather than see it as a threat to their profession. However, with the advancement of technology, palmistry has also evolved. One such technological tool that has been used in palmistry is the Canny edge detector.

The Canny edge detector is a computer vision algorithm used to detect edges in an image. It is widely used in many fields such as robotics, medical imaging, and now, even in palmistry. This algorithm is highly efficient and accurate in detecting edges, making it a perfect tool for analyzing the lines and markings on a person's palm.

Traditionally, palmistry was done by examining the lines and creases on a person's palm using the naked eye. However, this method had its limitations, and the interpretation of the lines and markings could vary from person to person. With the use of the Canny edge detector, these limitations are eliminated, and the results are more consistent and reliable.

Using the Canny edge detector, the palm reader can obtain a digital image of the palm, eliminating the need for the person to physically be present for the reading. This is particularly useful in the current times when social distancing is necessary. The digital image can be sent to the palm reader through various mediums such as email or messaging apps, making it convenient for both the palm reader and the client.

The Canny edge detector works by identifying the edges in an image and highlighting them in a binary format. This means that the edges are shown as white lines on a black background, making it easier to analyze. The algorithm also eliminates any noise or irrelevant details in the image, providing a clear and precise view of the palm lines.

One of the most significant advantages of using the Canny edge detector in palmistry is its ability to detect subtle changes in the lines and markings on the palm. This can be particularly useful in identifying any changes or developments in a person's life, which may not be visible to the naked eye. For instance, a break in the life line or an increase in the number of marriage lines can indicate significant changes in a person's life.

Moreover, the Canny edge detector also allows for a more in-depth analysis of the palm lines, as it can detect the thickness and intensity of the lines. This can provide valuable insights into a person's personality traits and potential future events. For example, a deep and well-defined heart line can indicate a passionate and emotional personality, while a faint and shallow heart line may suggest a reserved and introverted individual.

However, it is essential to note that the Canny edge detector is not a replacement for traditional palmistry. It is a tool that can enhance and complement the traditional practice. The final interpretation of the palm lines still lies in the hands of the palm reader, who can use their knowledge and expertise to provide accurate insights.

II. Major Palm Print Lines

There are at least three of them, though there may be gaps between them or they may be brief. Life line, a Head line, & a heart line. Lines' palm print characteristics are shown in Figure 1 above.

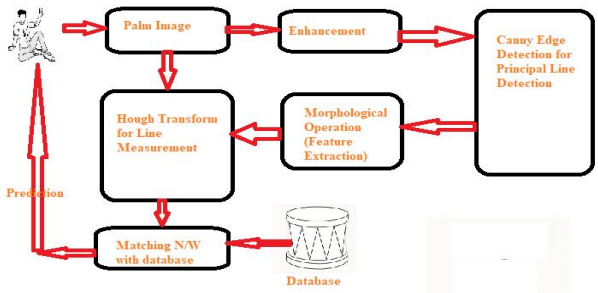
Heart Line: This line, often referred to as Love Line or the mensal line, provides information about person's emotional condition as well as their interactions, both romantic and otherwise, with others. This also be considered predictor of cardiac health. This line is situated above life line and head line. It may begin beneath the middle or index finger & extend toward the pinky finger.

Head line, often referred to as wisdom line and one of most significant line in Chinese palmistry, reveals one's mental, psychological make-up as well as their level of intellectual growth and intuitive ability. This line travels

horizontally across the palm toward the other border from where it starts slightly above life line, between thumb, index finger. Sometimes life line serves as the head line and the head line begins there. You have a strong willpower and the ability to influence matter. The term "writer's fork" or "lawyer's fork" can both refer to forked lines.
Life Line is the line on palm about which people are most interested. This line runs from the base of the thumb toward the base of the index finger, connecting to the wrist at the bottom. It's a popular fallacy that the life line predicts your future health or when you'll pass away. However, it does provide details about your life's interactions, connections with other people, health, and mental and emotional well-being.

III. Proposed Methodology

For centuries, people have employed the age-old art of palmistry to predict someone's personality, future, and even health. It is predicated on the idea that a person's palm's lines, shapes, and markings can disclose details about their personal history. Some people swear by palmistry's accuracy and have used it for guidance in their lives, despite the fact that some may write it off as pseudoscience. Technology has developed to such an extent in recent years that palmistry has been given a contemporary makeover. The study and interpretation of palm lines have been made possible by the application of clever edge detector operation.
An algorithm for image processing called the Canny Edge Detector is used to find edges in pictures. It has been applied extensively in computer vision and is currently present in the field of palmistry. By using the pixel intensity to identify edges in an image, the algorithm operates. This implies that it can identify a person's palm's edges, or more specifically, the creases and lines on their palm.
A high-resolution picture of the palm is required in order to use canny edge detector in palmistry. A smartphone with a good camera or a high-quality camera can be used to capture this. After obtaining the image, the canny edge detector algorithm is applied to process it. All of the palm line edges are highlighted in the resulting black and white image.
Accuracy is one of the primary benefits of using a canny edge detector in palmistry. Because of the algorithm's high precision in detecting edges, the lines on the palm can be examined in great detail. When someone has faint or overlapping palm lines, this can be especially helpful. These lines can be highlighted and made simpler to understand by the astute edge detector.
Moreover, the potential for human error is eliminated through the use of clever edge detector. The interpretation of palm lines in traditional palmistry is arbitrary and subject to individual variation. But because the interpretation is based on an algorithm's analysis of the palm lines, technology helps to make it more objective. This can lower the possibility of misunderstanding and result in readings that are more accurate.
The speed of the canny edge detector is another advantage in palmistry. In traditional palmistry, the lines on a person's palm are manually examined and analyzed, which can take a lot of time. This procedure is greatly accelerated by the use of technology, enabling faster and more accurate readings.
There are benefits to using a canny edge detector in palmistry, but there are also certain drawbacks. First of all, a lot depends on the caliber of the picture that is captured. The outcomes might not be as precise if the image is grainy or has low resolution. Furthermore, it's possible that the algorithm will miss subtle or small lines on the palm, which could be crucial in palmistry. This system is predicted by analyzing the principal lines in a palm image. The palmistry prediction model is created by the administrator by comparing predictions to typical primary palm line shapes. In Figure 2, the entire system flow diagram is shown.



. Figure 2- Proposed method

The user needs to upload their palm image that was taken with the system. This technique identified the primary lines in the palm image by converting the uploaded color image to a color grayscale image (Figure 3 & Figure 4). Next, measurements are made of the major lines' angle, length, and slope that were obtained from the palm image.

The primary lines are found using the Canny Edge detection technique, and the features are extracted using morphological operations. The measuring lines are created using the Hough transform technique. One advantage of the Hough transform is that it does not require adjacent pixels for every pixel along a line. This can be very useful when attempting to identify lines that have small breaks caused by noise or when objects are partially obscured.

One useful method for locating objects in images is the Hough transform. The classical Hough transform can be used to find regular curves such as circles, parabolas, ellipses, and straight lines. In situations where a feature cannot be adequately described analytically, the generalized Hough transform can be employed. An edge detector is often used as a pre-processing step to obtain image points or image pixels that are on the desired curve in the picture space. The linear Hough transform algorithm uses an accumulator, a two-dimensional array, to determine whether a line exists. The methodology looks for defective examples of objects within a given class of shapes through a voting process. The Hough transform method uses the normal form, and each line is defined by an angle (between the normal vector from the line's closest point to the origin and the X-axis) and a distance (r) between its points that are closest to the origin. During the stages of processing;

Figure 3-Palm Images by imaging device

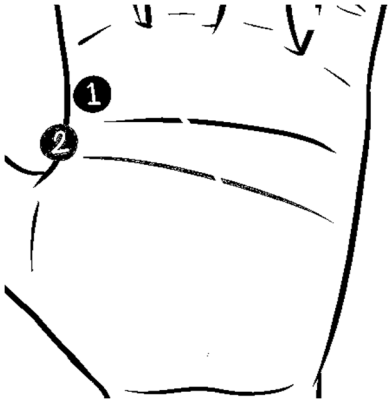


Figure 4- Major Lines in hand

Step1: Interpret heart line.

Depending on the tradition being followed, this line can be read either way (from pinkie finger to Index finger /vice versa). It is thought to be a sign of emotional stability, potential love interests, depression, and cardiac health(Figure 5).

Step2: Examine head line.

This reflects person's intellectualism, communication style, passion for knowledge, and learning style. A curved line represents imagination and spontaneity, whereas a straight line represents pragmatism and a methodical approach(Figure 6).

Figure 5- Heart line for Love

Step 3: Evaluate life line.

Line starts close to the thumb and curves in the direction of the wrist. It depicts one's physical condition, general wellbeing, and significant life changes (e.g., physical injuries, cataclysmic events, and relocation). The length has no bearing on how long it will live(Figure 7).

The system next compares the retrieved lines to the palmistry prediction model and displays the user-matched prediction result.

Figure 6- Head line for creativity

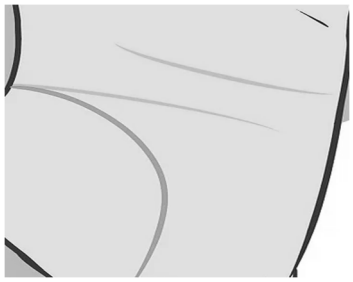


Figure 7- Life Line

IV. Discussion

In image processing and computer vision, one well-liked edge detection algorithm that is frequently employed is the canny edge detector. It converts sharp changes in pixel intensity into edges by detecting them. The lines and patterns on a person's palm are recognized by these edges.

A research team conducted a study to evaluate the canny edge detector's efficacy in palmistry. They gathered a dataset of palm images from various people, and they extracted the lines and patterns on the palms using the canny edge detector. Next, the outcomes were contrasted with the expert palm readers' interpretations.

The results of the study demonstrated how well the canny edge detector identified and extracted the lines and patterns on the palms. The researchers' analysis and interpretation of the lines was facilitated by their distinct and easy-to-see appearance. Additionally, the perceptive edge detector was able to pick up on minute variations in the lines that the human eye frequently misses.

The study also discovered that the canny edge detector had a high degree of accuracy in predicting the people's personality traits and future events. A strong and distinct life line, for instance, was linked to a long and healthy life, whereas a broken fate line portended difficulty and adversity in the near future.

The clever edge detector was also able to recognize patterns and symbols on the palms, including the letter M, which is thought to represent wealth and good fortune. These results further validated the usefulness of the canny edge detector in palmistry, as they agreed with the interpretations made by qualified palm readers.

The study's findings have created new opportunities for the application of technology in palmistry. The clever edge detector is a useful tool for palmistry practitioners and researchers alike, as it has demonstrated remarkable promise in precisely predicting and interpreting palm lines.

But it's crucial to remember that palmistry is a complicated field with a lot of other variables to take into account, like the size and form of the hand, the skin's texture, and the person's social and cultural background. As such, conventional palm reading techniques should not be replaced by the canny edge detector; rather, it should be used as an additional tool.

In summary, the application of the canny edge detector to palmistry has demonstrated encouraging outcomes in terms of precise palm line interpretation and prediction. This technology could improve our knowledge of palmistry and offer insightful information about a person's personality and future. More study and advancement in this area may result in more sophisticated and precise palmistry methods, which would ultimately be advantageous to both researchers and users of this antiquated art. Figures 8,9,10 display the results of canny edge detection, morphological operations, and the Hough Transform after the procedure described in Figure 3 is applied to the input hand figure.

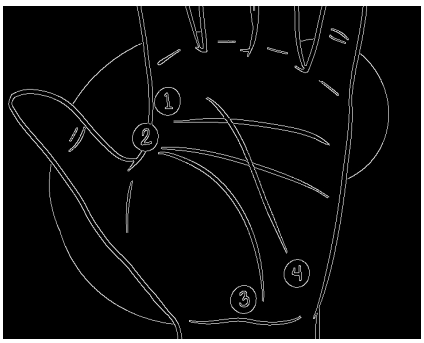


Figure 8- Canny edge detector for Lines on Palm

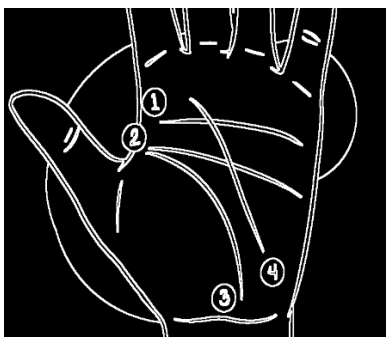


Figure 9- Morphological Operation on Canny output

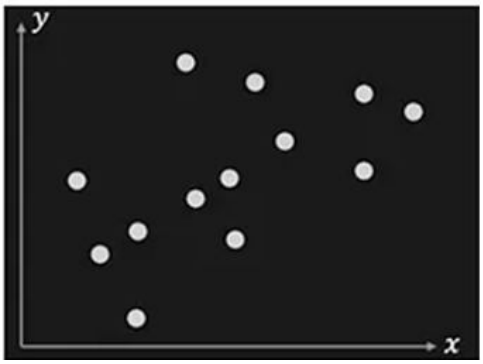


Figure 10- Hough Transform for Morphological image

V. CONCLUSIONS

This efficient method extracts the primary lines from a human hand using the Canny edge detection algorithm. The concepts of palmistry were used to develop the system that forecasts a person's future events. There are several contexts in which the Canny algorithm functions. Its parameters allow it to be tuned for edge recognition with different properties based on the particular needs of the given implementation. Modernizing palmistry through the use of the Canny edge detector is a big step in the right direction. It has improved the reliability, efficiency, and accessibility of palmistry. This cutting-edge technology has elevated palmistry to a whole new level and given people a greater understanding of their past, present, and future. Palmistry has undergone a revolution with the use of machine learning (ML), which has increased its accuracy, dependability, and accessibility. It has also given an age-old practice a scientific perspective, which has helped skeptics accept it more readily. We can only anticipate palmistry using machine learning to become even more sophisticated and accurate in the future given the ongoing advancements in technology. Predicting additional lines and particular symbols from the remaining portion of the palm will be the focus of future work.

REFERENCES

[1] Liyakat, K.K.S. (2024). Machine Learning Approach Using Artificial Neural Networks to Detect Malicious Nodes in IoT Networks. In: Udgata, S.K., Sethi, S., Gao, XZ. (eds) Intelligent Systems. ICMIB 2023. Lecture Notes in Networks and Systems, vol 728. Springer, Singapore. https://doi.org/10.1007/978-981-99-3932-9_12 available at: https://link.springer.com/chapter/10.1007/978-981-99-3932-9_12

[2] K. Kasat, N. Shaikh, V. K. Rayabharapu, M. Nayak, "Implementation and Recognition of Waste Management System with Mobility Solution in Smart Cities using Internet of Things," 2023 Second International Conference on Augmented Intelligence and Sustainable Systems (ICAISS), Trichy, India, 2023, pp. 1661-1665, doi: 10.1109/ICAISS58487.2023.10250690

[3] Kazi, K. (2024). AI-Driven IoT (AIIoT) in Healthcare Monitoring. In T. Nguyen & N. Vo (Eds.), Using Traditional Design Methods to Enhance AI-Driven Decision Making (pp. 77-101). IGI Global. https://doi.org/10.4018/979-8-3693-0639-0.ch003 available at: https://www.igi-global.com/chapter/ai-driven-iot-aiiot-in-healthcare-monitoring/336693

[4] Kazi, K. (2024). Modelling and Simulation of Electric Vehicle for Performance Analysis: BEV and HEV Electrical Vehicle Implementation Using Simulink for E-Mobility Ecosystems. In L. D., N. Nagpal, N. Kassarwani, V. Varthanan G., & P. Siano (Eds.), E-Mobility in Electrical Energy Systems for Sustainability (pp. 295-320). IGI Global. https://doi.org/10.4018/979-8-3693-2611-4.ch014 Available at: https://www.igi-global.com/gateway/chapter/full-text-pdf/341172

[5] Prashant K Magadum (2024). Machine Learning for Predicting Wind Turbine Output Power in Wind Energy Conversion Systems, Grenze International Journal of Engineering and Technology, Jan Issue, Vol 10, Issue 1, pp. 2074-2080. Grenze ID: 01.GIJET.10.1.4_1

[6] K. K. S. Liyakat, "Detecting Malicious Nodes in IoT Networks Using Machine Learning and Artificial Neural Networks," 2023 International Conference on Emerging Smart Computing and Informatics (ESCI), Pune, India, 2023, pp. 1-5, doi: 10.1109/ESCI56872.2023.10099544. Available at: https://ieeexplore.ieee.org/document/10099544

[7] M Pradeepa, et al, "Student Health Detection using a Machine Learning Approach and IoT", 2022 IEEE 2nd Mysore sub section International Conference (MysuruCon), 2022.

[8] Kazi Sultanabanu Sayyad Liyakat (2023). Electronics with Artificial Intelligence Creating a Smarter Future: A Review, Journal of Communication Engineering and Its Innovations, 9(3), 38-42

[9] Kazi Sultanabanu Sayyad Liyakat (2023). Dispersion Compensation in Optical Fiber: A Review, Journal of Telecommunication Study, 8(3), 14-19
[10] K K S Liyakat (2022). Implementation of e-mail security with three layers of authentication, Journal of Operating Systems Development and Trends, 9(2), 29-35
[11] Mishra Sunil B., et al. (2024). AI-Driven IoT (AI IoT) in Thermodynamic Engineering, Journal of Modern Thermodynamics in Mechanical System, 6(1), 1-8.
[12] Priya Mangesh Nerkar , Bhagyarekha Ujjwalganesh Dhaware , Kazi Sultanabanu Sayyad Liyakat, "Predictive Data Analytics Framework Based on Heart Healthcare System (HHS) Using Machine Learning", Journal of Advanced Zoology, 2023, Volume 44, Special Issue -2, Page 3673:3686.
[13] Sultanabanu Kazi, et al.(2023), Fruit Grading, Disease Detection, and an Image Processing Strategy, Journal of Image Processing and Artificial Intelligence, 9(2), 17-34.
[14] Sultanabanu Kazi, Mardanali Shaikh, "Machine Learning in the Production Process Control of Metal Melting" Journal of Advancement in Machines, Volume 8 Issue 2 (2023)
[15] Vahida Kazi, et al, " Deep Learning, YOLO and RFID based smart Billing Handcart", Journal of Communication Engineering & Systems, 2023, 13(1), pp. 1-8
[16] Kazi Kutubuddin Sayyad Liyakat, "Analysis for Field distribution in Optical Waveguide using Linear Fem method", Journal of Optical communication Electronics, 2023, Vol 9, Issue 1, pp. 23- 28
[17] Kazi Kutubuddin, "Detection of Malicious Nodes in IoT Networks based on packet loss using ML", Journal of Mobile Computing, Communication & mobile Networks, 2022, Vol 9, Issue 3, pp. 9 -16
[18] Kazi Kutubuddin, "Big data and HR Analytics in Talent Management: A Study", Recent Trends in Parallel Computing, 2022, Vol 9, Issue 3, pp. 16-26.
[19] Kazi Kutubuddin S. L., "Predict the Severity of Diabetes cases, using K-Means and Decision Tree Approach", Journal of Advances in Shell Programming, 2022, Vol 9, Issue 2, pp. 24-31
[20] Kazi K., "Model for Agricultural Information system to improve crop yield using IoT", Journal of open Source development, 2022, vol 9, issue 2, pp. 16 – 24.
[21] K. Kazi, "Smart Grid energy saving technique using Machine Learning" Journal of Instrumentation Technology and Innovations, 2022, Vol 12, Issue 3, pp. 1 – 10.