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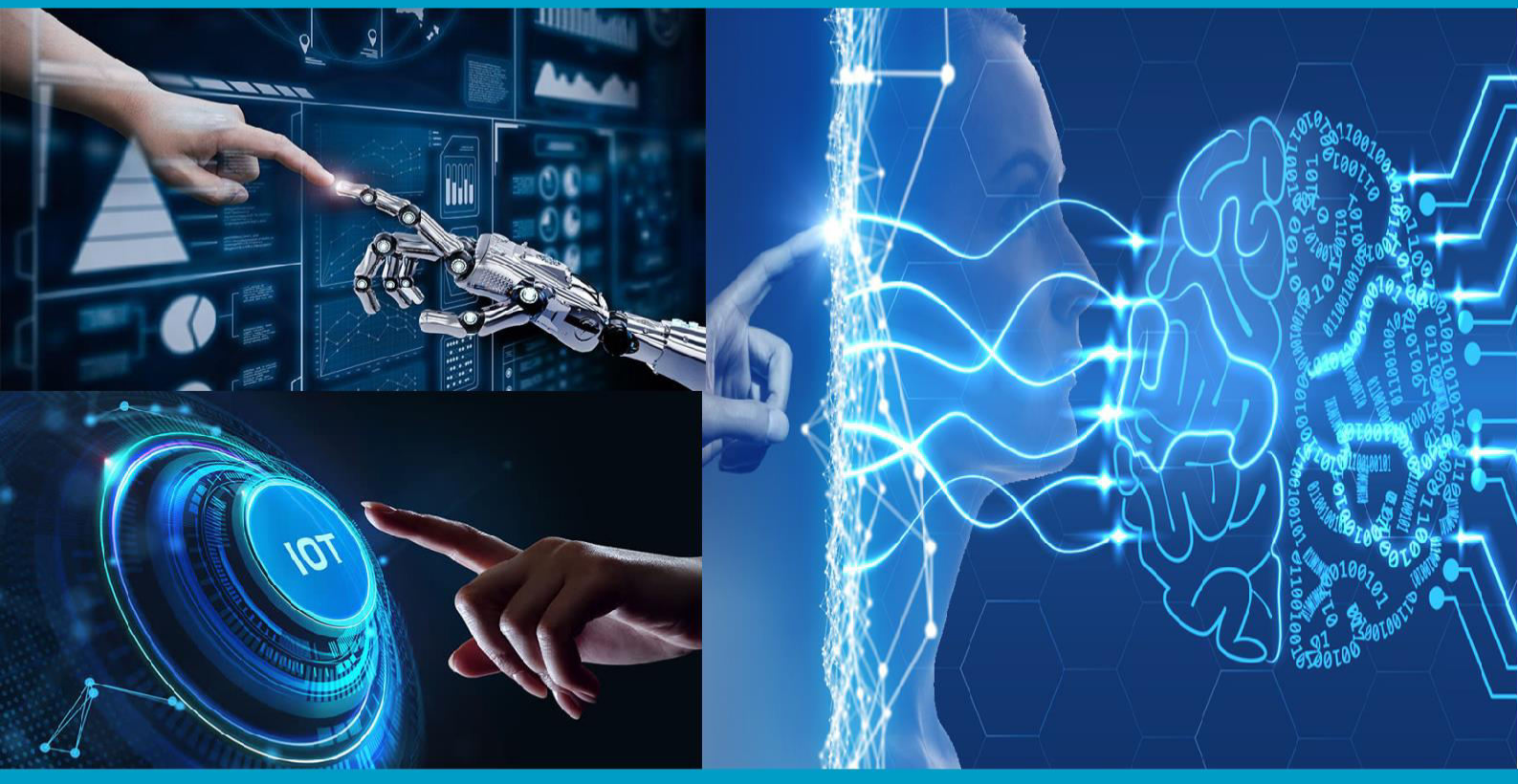

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Survey Towards Real Time Baby Monitoring System Using Deep Learning

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ABSTRACT: Newborn baby has to be monitored continuously. The system is utilized to minimize human timing with continuous monitoring and using new advent of technology to help with monitoring of baby. This system is utilized to give a warm situation to babies. The system uses technology of IoT with Deep learning to run through monitoring of baby . The system uses IoT sensors to monitor the temperature around baby and moisture level on bedding of baby. As well it involves checking the crying of baby and monitoring sleep mode and wakeup mode of baby. The whole system as one gives alert to parents with any changes in normal conditions of baby. The same can be used in incubator to monitorthe new born baby. The proposed system prototype is fabricated and tested to prove its effectiveness in terms of cost andsimplicity and to ensure safe operation to enable the baby-parenting anywhere and anytime through the network. Finally, the baby monitoring system is proven to work effectively in monitoring the baby's situation and surrounding conditionsaccording to the prototype.

KEYWORDS: Text detection, Inpainting, Morphological operations, Connected component labelling.

I. INTRODUCTION

At present, female participation in the work force in the industrialized nations has greatly increased, thereby affecting infant care in many families. Both parents are required to work due to the high cost of living. However, they still need tolook after their babies, thereby increasing workload and stress, especially of the mother. Working parents cannot alwayscare for their babies. They either send their babies to their parents or hire a baby caregiver while they are working. Someparents worry about the safety of their babies in the care of others. Thus, they go home to check on their babies during their free time, such as lunch or tea break. A baby monitoring system that can monitor the babies' condition real time is proposed to solve these problems. A baby monitoring system consisting of a video camera and microphone without limitations of coverage. It can send data and immediately notify the parents about urgent situations, thereby shortening the time needed to handle such scenarios. Generally, babies cry because they are hungry, tired, unwell, or need their diaper changed. Internet of Things (IoT) simply refers to a network of objects that are connected to the internet. It provides devices with the ability to transfer sensor data on the Internet without requiring intervention . The IoT encompasses manydevices and is growing at a rapid rate, because it is such a broad category. A forecast states that in 2019, approximately 26.66 billion IoT devices will be active; by 2025, 75 Billion IoT devices worldwide will be available and wirelessly connected to the Internet. Among these connected devices, millions of wearable sensors are widely used in healthcare applications . The total global spending on the IoT in 2016 was 737 billion dollars and was projected to reach 1.29 trillion dollars in 2020. IoT is a prominent field that will increase and grow exponentially. The function of IoT is control, real- time monitoring, and perform autonomy or autonomous function and optimization. Perhaps one of the main reasons whythe IoT is extremely large is that it aims to make life more convenient, and people are more likely to invest in things thatmake their lives easier. Accordingly, the number of IoT applications continues to increase in different fields. In this study, IoT is integrated into our baby monitoring system to achieve a rapid response time and to provide a greater sense of security for parents. It is used to gather data read by the sensors and uploads these data to the server. It also receives commands given by the user to perform specific tasks via the server.

Paper is organized as follows. Section I gives the introduction topic with need for system and overall use over world. Section II gives the related work till now in this field for the system. Section III gives the architecture for the system andinclination of more facilities included in the system. Finally, Section V presents conclusion. Finally, Section V presentsconclusion.

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II. RELATED WORK

A smart cradle with a baby monitoring system[1] over IoT has been designed and fabricated to monitor a baby's vital parameters, such as crying condition, humidity, and ambient temperature. Node MCU was used as the main controller board in the project's circuit design, because it had a built-in Wi-Fi module, which enabled the implementation of IoT concept in the developed system. The demand of IoT was achieved by using the Node MCU due to its simplicity and open-source nature. Red meranti wood was used as the material to build the baby's cradle, because of its general use in woodworks and due to its workability. Improvements were made during the enhancement phases to ensure that the research outcomes achieved the objectives. The finished prototype was tested by using a mobile phone with a baby cryingringtone, which was placed in the cradle. When the mobile phone rang for a few seconds, the cradle started swinging because of the system's assumption that the baby was crying due to the detected sound. A notification was sent to the mobile phone of the user to signal that the baby is crying. The temperature and humidity of the surroundings were determined, and the mini fan was turned on if the measured temperature was above 28 C. With the aid of Node MCU, the parents can control the baby cradle and the mini fan using mobile apps or an Internet connected computer. Realtimevision monitoring was achieved with the help of the wireless camera. The user can monitor the baby through the cameramobile application and talk to the baby through the built-in microphone on the wireless camera

Face Recognition using Dimensions and Distances[2] The system proposes a face recognition-based mobile attendance management which is flexible and can be used anytime anywhere. The system performs in real time with smart user- friendly device which helps to reduce the cost of equipment to be used in system. User end consist of Teachers, Studentas well Parents which gives monitoring of attendance in real time. This also saves time and money used for attendance in regular manual system. Main objective in this system is recognition of faces for attendance. Facial Recognition can bedone using two method first is Appearance based and other is feature based. Feature based recognizes features of faces such as nose, eyes etc. while Appearance is based on dimension and distances. in this system authors have used filtering, based on Euclidean distances calculated by Eigenfaces, Fisher faces, and LBP (Local Binary Pattern). The system fails when the distance between face and camera is increased, thus showing the limitations.

Facial Recognition with Feature Extraction[3] This system encourages use of feature detection for facial recognition. Attendance is ritual in classroom which consumes time and money on equipment used for taking attendance. The systemproposes attendance to be taken from a video capture during regular class so that students are not disturbed, the video first goes through process of face detection, and then feature extraction. Pose estimation of student, image size, resolution, brightness are also considered as part of research. Deep Learning is applied after quality assessment of face recognized to apply the attendance to the student. This system sometimes fails to recognize the face depending on more light or darkness in the room.

Strategy of Face recognition with Eigen Face, PCA [4]There are different strategies accessible for face recognition like Eigen face, PCA and LDA hybrid algorithm. The proposed automated attendance system using face recognition is a great model for marking the attendance of students in a classroom. This system also assists in overcoming the chances of proxies and fake attendance. In the modern world, a large number of systems using biometrics are available. However, the facial recognition turns out to be a viable option because of its high accuracy along with minimum human intervention. This system is aimed at providing a significant level of security. Hence, a highly pro-efficient attendance system for classroom attendance needs to be developed which can perform recognition on multiple faces at one instance. Also, thereis no requirement of any special hardware for its implementation. A camera, a PC and database servers are sufficient forconstructing the smart attendance system.

Mahalanobis method for classification of extracted facial feature[5] The use of reconstruction algorithms from 2D imagesto 3D forms that are used as a database in face recognition. In this study, a study of facial recognition using an approachto the development of 2D to 3D image reconstruction models using Convolutional Neural Network (CNN) and the use of PCA are used as the feature extraction method. The CNN method is used to produce a 3D face image from a 2D face image. The PCA method used as a feature extraction method and the Mahalanobis method used as a classification methodon the proposed face recognition-based attendance system can work well. The proposed method can produce a face recognition that has a high accuracy of up to 98 percent algorithm.

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III.METHODOLOGY

The system includes two sensors for monitoring body temperature and moisture level. One sound sensor helps to detect the crying sound of baby. camera is attached to study sleeping condition of baby. ESP8266 is used for real time monitoring which helps for continuous monitoring of baby. Real time alerts are given to parents on SMS with any changein condition of monitoring of baby.

- **Advantages:**

1. Baby remains at comfort
2. Parents also remain at comfort
3. can be applied to sick senior citizen.
4. peace of mind
5. security and safety
6. Capturing precious moments

- **Disadvantages:**

1.dependancy on technology
2.interface and range limitations
3.cost
4.battery life

- **Application:**

1. Home
2. Home Care
3. Daycare
4. Hospital

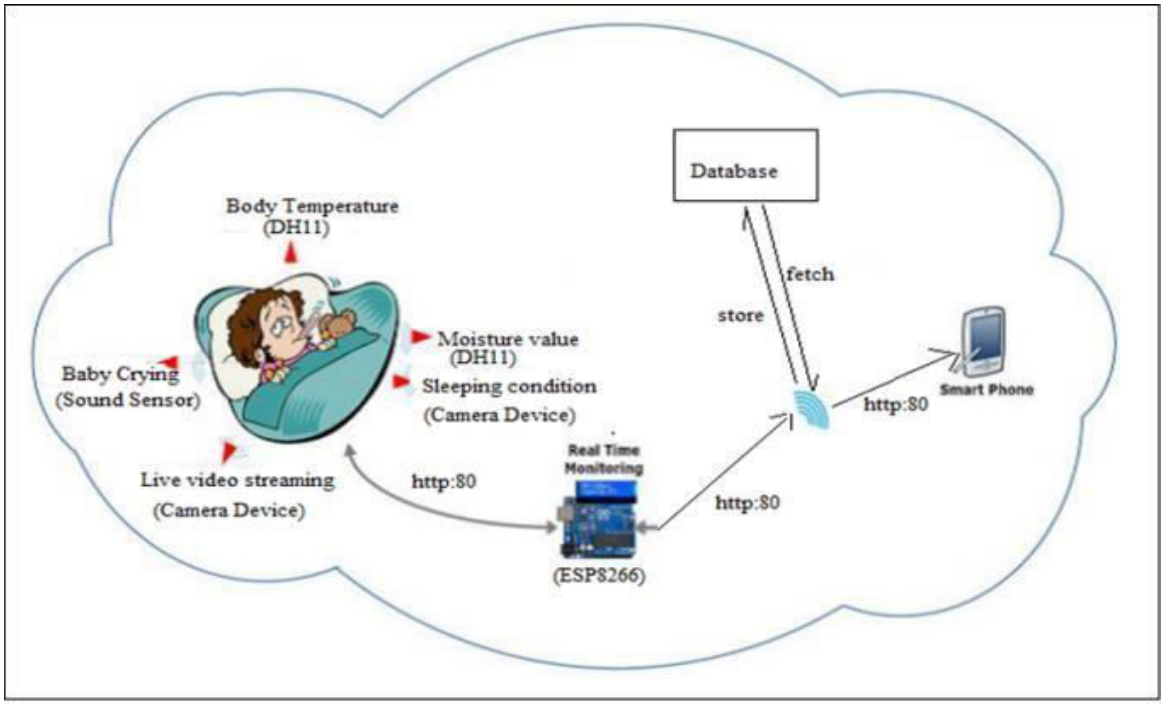

Fig 1: Proposed System Architecture

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IV. WORKING MODULE

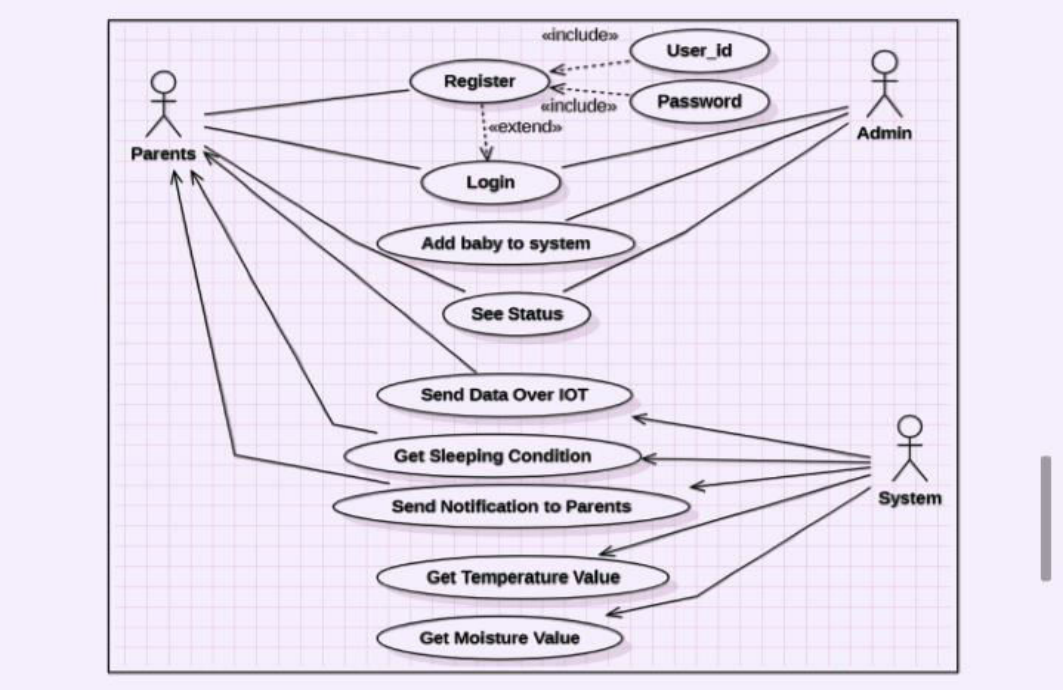
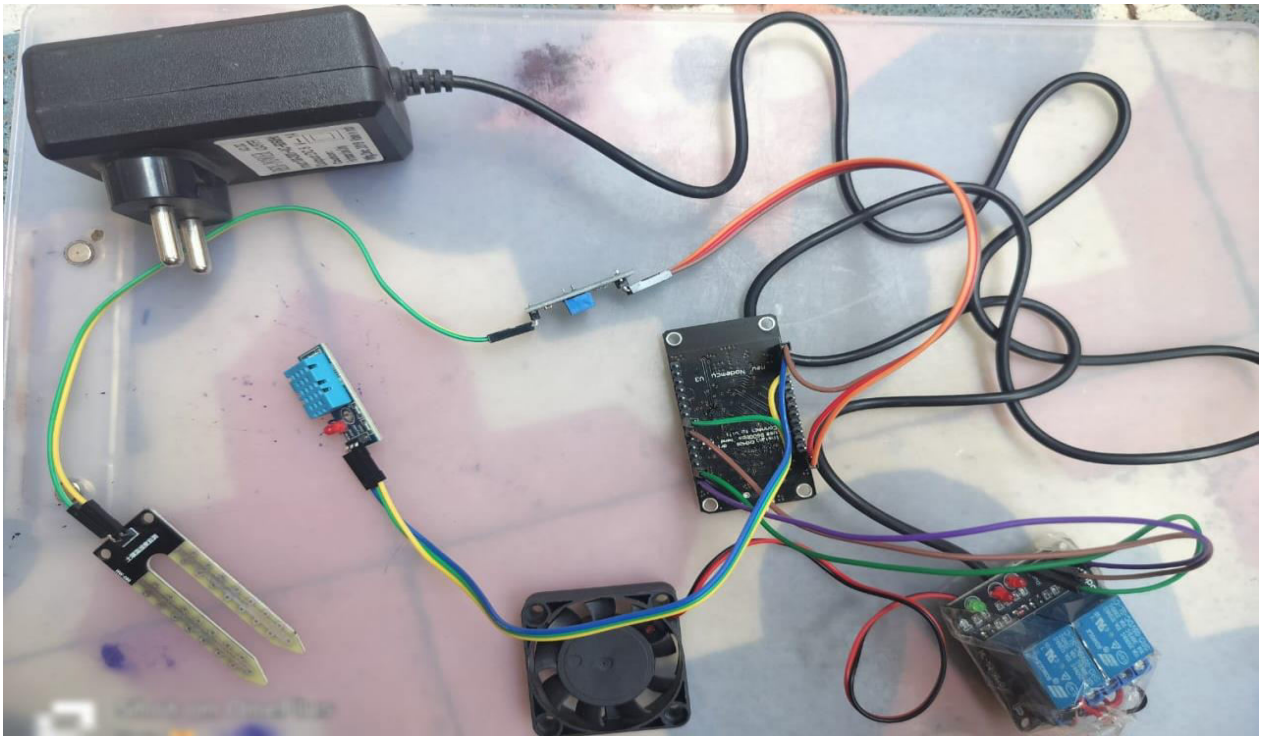


Fig 2. System Working Use Case

V. EXECUTION OF PROJECT

- **Hardware:**



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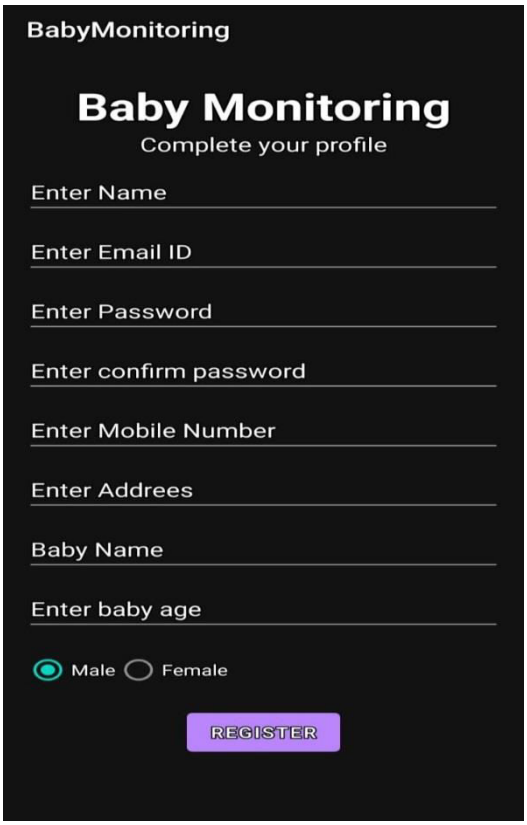
Software:

- **Home page:**

Login page:

Registration page:



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IV. CONCLUSION

Taking everything into account, this work proposed a model of a newborn baby monitoring system that is reasonableto be utilized for facility in the rural region. A moderate, transportable, and vitality sparing newborn baby monitor was effectively created through this work. The system could give an appropriate and favourable condition which in the long run ready to avert baby that was conceived in the country region from hypothermia condition. They will have the capacity to get the essential care inside a brief period amid the basic condition, thus reducing the mortality case among them.

REFERENCES

[1] W. A. Jabbar, H. K. Shang, S. N. I. S. Hamid, A. A. Almohammedi, R. M. Ramli and M. A. H. Ali, "IoT-BBMS: Internet of Things-Based Baby Monitoring System for Smart Cradle," in IEEE Access, vol. 7, pp. 93791-93805, 2019, doi: 10.1109/ACCESS.2019.2928481.

[2] Paul Viola and Michael Jones. Rapid object detection using a boosted cascade of simple features. In Computer Vision and Pattern Recognition, 2001. CVPR 2001. Proceedings of the 2001 IEEE Computer Society Conference on, volume 1, pages I–I. IEEE, 2001.

[3] Hongliang Jin, Qingshan Liu, Hanqing Lu, and Xiaofeng Tong. Face detection using improved lbp under bayesian framework. In Image and Graphics (ICIG'04), Third International Conference on, pages 306–309. IEEE, 2004.

[4] Lun Zhang, Rufeng Chu, Shiming Xiang, Shengcai Liao, and Stan Z Li. Face detection based on multi-block lbp representation. In International Conference on Biometrics, pages 11–18. Springer, 2007.NaliniPriya G, Priyadarshani P, RajaRajeshwari K, IEEE 6thInternational Conference on smart structures and systems ICSSS 2019.

[5] Xiaoyu Wang, Tony X Han, and Shuicheng Yan. An hog-lbp human detector with partial occlusion handling. In Computer Vision, 2009 IEEE 12th International Conference on, pages 32–39. IEEE, 2009.

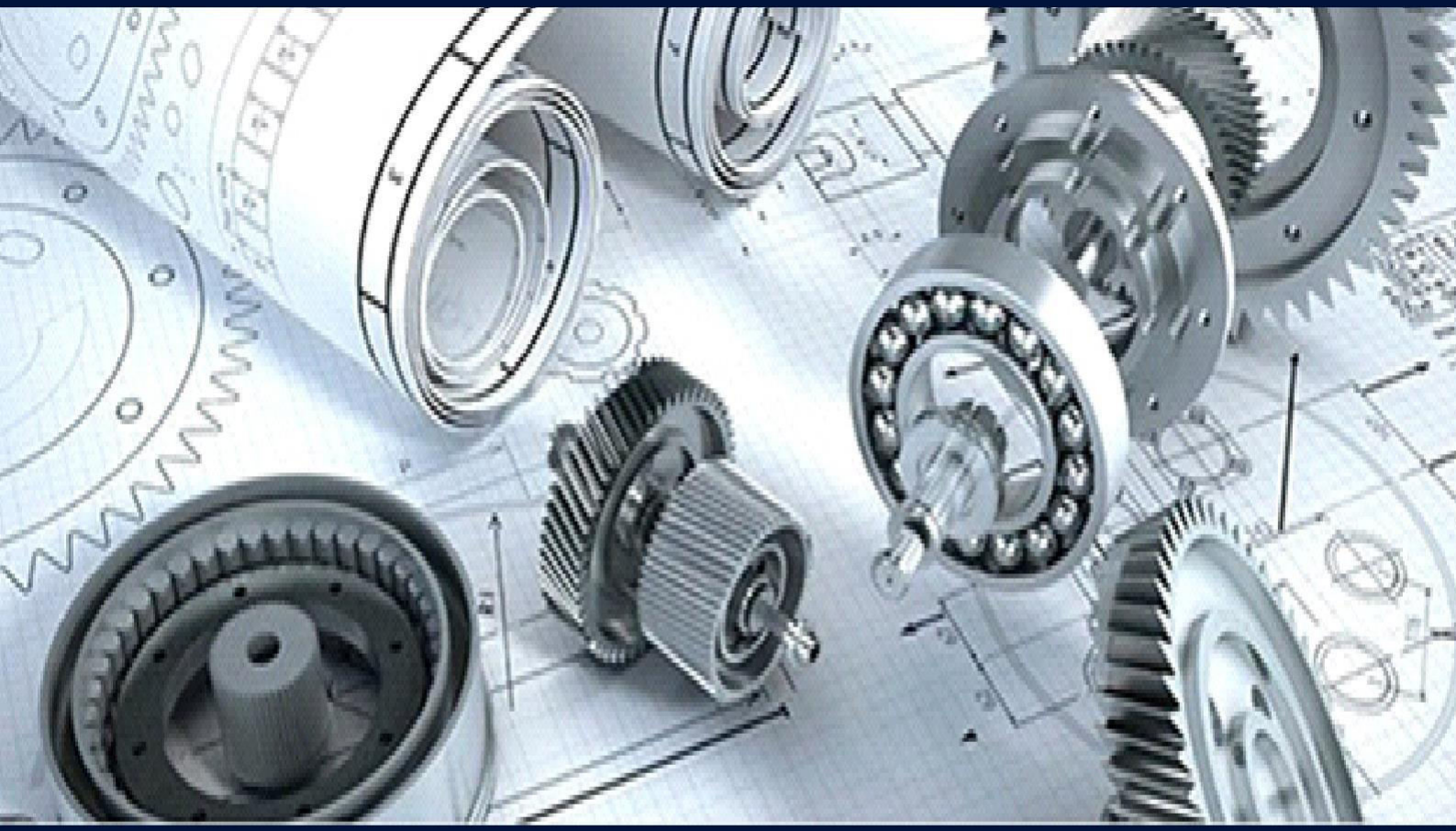
[6] R. Samet and M. Tanriverdi, "Face Recognition-Based Mobile Automatic Classroom Attendance Management System," 2017 International Conference on Cyberworlds (CW), Chester, 2017, pp. 253-256, doi: 10.1109/CW.2017.34.

[7] S. Bhattacharya, G. S. Nainala, P. Das and A. Routray, "Smart Attendance Monitoring System (SAMS): A Face Recognition Based Attendance System for Classroom Environment," 2018 IEEE 18th International Conference on Advanced Learning Technologies (ICALT), Mumbai, 2018, pp. 358-360, doi: 10.1109/ICALT.2018.00090..

[8] S. Sawhney, K. Kacker, S. Jain, S. N. Singh and R. Garg, "Real-Time Smart Attendance System using Face Recognition Techniques," 2019 9th International Conference on Cloud Computing, Data Science Engineering Confluence, Noida, India, 2019, pp. 522-525, doi: 10.1109/CONFLUENCE.2019.8776934.

[9] E. Winarno, I. Husni Al Amin, H. Februariyanti, P. W. Adi, W. Hadikurniawati and M. T. Anwar, "Attendance System Based on Face Recognition System Using CNN-PCA Method and Real-time Camera," 2019 International Seminar on Research of Information Technology and Intelligent Systems (ISRITI), Yogyakarta, Indonesia, 2019, pp. 301-304, doi: 10.1109/ISRITI48646.2019.90 34596.

[10] W. Zeng, Q. Meng and R. Li, "Design of Intelligent Classroom Attendance System Based on Face Recognition," 2019 IEEE 3rd Information Technology, Networking, Electronic and Automation Control Conference (ITNEC), Chengdu, China, 2019, pp. 611-615, doi: 10.1109



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