LITERATURE REVIEW

[1] Dr. M. V. Vyawahare, et .al (2019) proposed the work related to "IOT Based School Bus Monitoring and Security System", this scheme uses an alcoholic and a panic switch for the safety of the children. The status of the bus is sent to the school as well as parents in case of any emergency conditions. They proposed algorithm that the device is placed inside the bus to determine the position of the bus using global positioning system and GSM module is used.

ADVANTAGE:

- Since the GPS system is used it is easy to track the vehicle of the child.

DISADVANTAGE:

- The entry and exit of the child inside and outside of the bus is not determined, so it may lead to the missing of the child.

HARDWARE DETAILS:

- Arduino MEGA,
- MQ3 Alcohol sensor,
- Panic switch,
- Power Supply.

SOFTWARE DETAILS:

- GPS Module,
- GSM Module,
- ESP 8266 Wi-Fi Module.

SUMMARY:

To implement this system CCTV camera, mobiles and different sensors such as RFID, smoke detectors need to be used and as per the requirement they will be connected with GPRS, Wi-Fi, Zigbee, Bluetooth. All data collected by different sensors and devices is collected, aggregated and processed to know more about the context to satisfy the purpose correctly and effectively. Further this application can be implemented with the help of MQTT protocol.

REFERENCE:

- K. Ashton, "That 'Internet of Things' Thing,"http://www.rfidjournal.com/articles/view?4986.
- L. Atzori, *et al*., "The Internet of Things: A survey," in Elsevier, Computer Networks, 2010.

[2] Poonam Gupta,et.al (2016) proposed the work related to"An IoT Framework for Addressing Parents Concerns about Safety of School GoingChildren",in this paper a technology is developed to ensure safety of the children boarding toschool and gets down the bus at home's doorstep. Parents also get notification when the childenters their classroom first time ina day. Child can disseminate the signal to the parentsSingle point of contact (SPOC) at school to make them aware about emergency.

ADVANTAGE:

- parents get notification whenhis child boards the bus for school and gets down the bus at home's doorstep.

DISADVANTAGE:

- Signal can be sent to the parents even if they simply play and beat their friends.

HARDWARE DETAILS:

- mobiles,
- CCTV camera,
- RFID Readers.

SOFTWARE DETAILS:

- HTTP,
- MQTT,
- COAP.

SUMMARY:

A smartphone application can be downloaded by the parents which will continuously show the location of the bus. The system wasable to experimentally demonstrate it's effective performance to track the school bus ;thereby ensuring the parents of their child's safety.

REFERENCE:

- Aaron Smith, "Nearly half of American adults are Smartphone", http://pewinternet.org/~/media/File/Report/2012/Smart phone%20ownership%2012.pdf,2012
- Jithin V mohan, Minu Balan, Sharoon Thomas, and Lynn Mariette Mendonza, "Fleet Mangement System", B.Tech Degree Thesis, College of Engineering, Munnar, Idukki, Kerala, India, 2009.

[3] V Santhi, et .al (2017) proposed the work related to "IOT Based Health Monitoring System for Pregnant Ladies Using CC3200",in this paper a technology a wearable device will continuously monitor the patient and do data logging continuously.

ADVANTAGES:

- Ease of operation
- Low maintenance cost
- Fit and forget system
- No wastage of time
- Durability
- Wearable device
- Compact in size

DISADVANTAGE:

- The doctor needs to monitor the information sent by the device. If any critical situation then doctor must be there with the patient.

HARDWARE COMPONENTS

- Microcontroller – CC3200
- Temperature sensor
- Pressure Sensor
- Rs232 - MAX232
- WIFI in-built in CC3200
- Power supply circuit

SOFTWARE USED

- Embedded C

SUMMARY:

Currently available system is not compact and wearable.Hence it occupies more space and measurement capacity is not that good.But the system we proposed will collect and transfer the information to the doctor at the earliest because of IoT and the product is compact and wearable. It helps pregnant ladies to avoid miscarriage and the doctors are able to suggest healthy diet to the women from their place itself through IoT.

REFERENCE:

- Darwish A, Hassanien AE (2012) Wearable and Implantable Wireless Sensor Network Solutions for Healthcare Monitoring. Sensors 12: 12375-12376.
- Tia Gao, Dan Greenspan, Matt Welsh, Radford R. Juang, and Alex Alm, "Real Time Patient Monitoring System Using Lab view", *International Journal of Scientific & Engineering Research*, April-2012.

[4] M Nickson, et .al (2021) proposed the work related to "A Review of security standard and frameworks for IOT Based Smart Environments", in this paper presents a review of existing security standards and assessment frameworks which also includes several NIST special publications on security techniques highlighting their primary areas of focus to uncover those that can potentially address some of the security needs of IoT-based smart environments.

ADVANTAGES:

- SECURITY CONCERNS
- PRIVACY CONCERNS

DISADVANTAGES:

- LACK OF STANDARDIZATION
- Technology evolution
- Security and Privacy
- Connectivity
- Law enforcement and regulations

SOFTWARE

- NIST CYBERSECURITY FRAMEWORK
- NIST RISK MANAGEMENT FRAMEWORK (RMF)
- NIST PRIVACY FRAMEWORK
- NIST SP 800-53

HARDWARE

- IOT based smart environment

SUMMARY:

However, more research still needs to be done to improve on the work conducted in this study as well as spark further discussions into the development of new security standards and assessment frameworks for IoT-based smart environments. A combination of all these challenges makes the security of IoT-based Smart environments much more difficult to develop, implement, enforce, and maintain.

REFERENCE:

- H. Lin and N.W. Bergmann, ``IoT privacy and security challenges for smart home environments,'' *Information*, vol. 7, no. 3, p. 44, 2016.

- European Union. *What is GDPR, the EU's New Data Protection Law*. Accessed: Apr. 13, 2021. [Online].Available: https://gdpr.eu/what-is-gdpr/

[5] Lien-Wu Chen, et .al (2019) proposed the work related to "Crowdsourced Children Monitoring and Finding With Holding Up Detection Based on Internet of Things Technologies", In this paper, They propose a crowdsourced children monitoring and finding (CCMF) framework to detect holdingup
behaviors and find missing children using wearable devices and surrounding smartphones based on Internet of Things (IoT) technologies.

ADVANTAGES:

- Wifi connection
- Bluetooth facility
- G sensor connection
- Database storage

DISADVANTAGE:

- High cost
- Complex network
- More architectural knowledge

SOFTWARE:

- CCMF framework
- ios app
- database server connection

HARDWARE:

- g sensor
- accelerometer
- beacon signal
- arduino

SUMMARY:

The proposed framework extracts representative acceleration features of the target child to distinguish holding-up behaviors from non-holdingup actions. In addition, diverse holding-up behaviors from different postures of the target child are classified with the extracted representative acceleration features.

REFERENCE:

- J. Wang, Y. Wang, D. Zhang, and S. Helal, " Energy saving techniques in mobile crowd sensing: Current state and future opportunities," *IEEE Commun. Mag.*, vol. 56, no. 5, pp. 164–169, May 2018.

- S. L. Ting, S. K. Kwok, A. H. Tsang, and G. T. Ho, "The study on using passive RFID tags for indoor positioning," *Int. J. Eng. Bus. Manage.*, vol. 3, no. 1, pp. 9–15, Jan. 2011.

[6] XIANG LI , et .al (2018) proposed the work related to the "Enhancing Cloud-Based IoT Security Through Trustworthy Cloud Service: An Integration of Security and Reputation Approach" , in this paper, they proposed this framework enables the trust evaluation of cloud services in order to ensure the security of the cloud-based IoT context via integrating security- and reputation-based trust assessment methods. The security-based trust assessment method employs the cloud-speci_c security metrics to evaluate the security of a cloud service.

ADVANTAGE:

- security-based trust assessment method (namely, SeTA).
- reputation-based trust assessment method (namely, ReTA).

DISADVANTAGE:

due to the resource constraints of IoT devices, the tasks with high computational complexity and the large volume of data storage in the IoT context are always handled by the resource-rich cloud paradigm

SOFTWARE:

- cloud software
- iot integration

HARDWARE

- Iot devices
- Arduino

SUMMARY:

This framework has the ability to enhance the security of the cloud-based IoT con- text through trustworthy cloud services. It also facilitates CSCs in assessing the trustworthiness of the cloud services provided by the functionally equivalent CSPs and selecting the most trustworthy one from them to on which to deploy the cloud service.
As future work, They aim to build a working prototype for our proposed trust assessment framework and implement the proposed trust assessment methods in a practical cloud environment.

REFERENCE:

- S. K. Lee, M. Bae, and H. Kim, ``Future of IoT networks: A survey,'' *Appl. Sci.*, vol. 7, no. 10, p. 1072, 2017.
- W. Li *et al.*, ``System modelling and performance evaluation of a three-tier Cloud of Things,'' *Future Gener. Comput. Syst.*, vol. 70, pp. 104_125, May 2017.

[7] Shruti Anant Tiwarkar, et .al (2020) proposed the work related to "IOT based school child tracker system" , in this paper proposed a system which focus on children safety by tracking them and providing the live location of child with the help of GPS module and sending information through SMS notification.

ADVANTAGES:

- RFID scanning
- Location identification through gps
- Notification

DISADVANTAGES:

- Low accuracy
- Always need to carry ID card
- If lossed then not able to monitor

HARDWARE :

- RFID tag
- Gps tracker

SOFTWARE:

- Arduino
- Application
- Cloud access

SUMMARY:

The safety of the school children during the daily outing become an issue of concern. Here our developed system has helped to reduce this problem.
In future for more accurate result we can integrate fingerprint scanning also.

REFERENCE:

- Abha Damani, Hardik Shah and Krishna Shah (2015). "Global Position System for Object Tracking". International Journal of Computer Applications (0975 –8887) Volume 109 – No. 8
- Hind Abdalsalam Abdallah Dafallah (2014). "Design and Implementation of an accurate real time GPS tracking system". The Third International Conference on e-Technologies and Networks for Development (ICeND2014).

[8] Nada Abdul Al-Balushi , et .al (2018) proposed the work related to "Transport Safety Mechanism of school children using IOT based smart system" in this paper present iot smart transportation system for a children school.The system consist of ir senors to caluculate the number of students,RFID card and RFID reader to read student data and attendance recording.

ADVANTAGE:

- RFID attendance
- Alcohol sensing
- Notification for parents

DISADVANTAGES:

- Monitoring required
- Data handling
- Attention of the driver required

SOFTWARE:

- Cloud access
- Application
- Notification sms

HARDWARE:

- MQ3 sensor
- Arduino
- RFID tag

SUMMARY:

They conclude that through the implementation of this resear can reduce the suffocan acentischool buses facing most of smart system will ensure the safety of students during pick up and drop off . This research will be beneficial for both schools and the community. A reliable network designed, as it is manageable and scalable to become more accurate in the future.

REFERENCE:

- Ali Al Dahoud, M.F.(2018) NodeMCU V3 for fast iot application development.
- Balaji Sivasubrmanian, E.F. (2010 , July 15).CISCO. Retrieved from ciscopress.com:http://www.ciscopress.com/articles/articles.asp?p=1608131&seqNum=3