# Project Design Phase-II
## Technology Architecture

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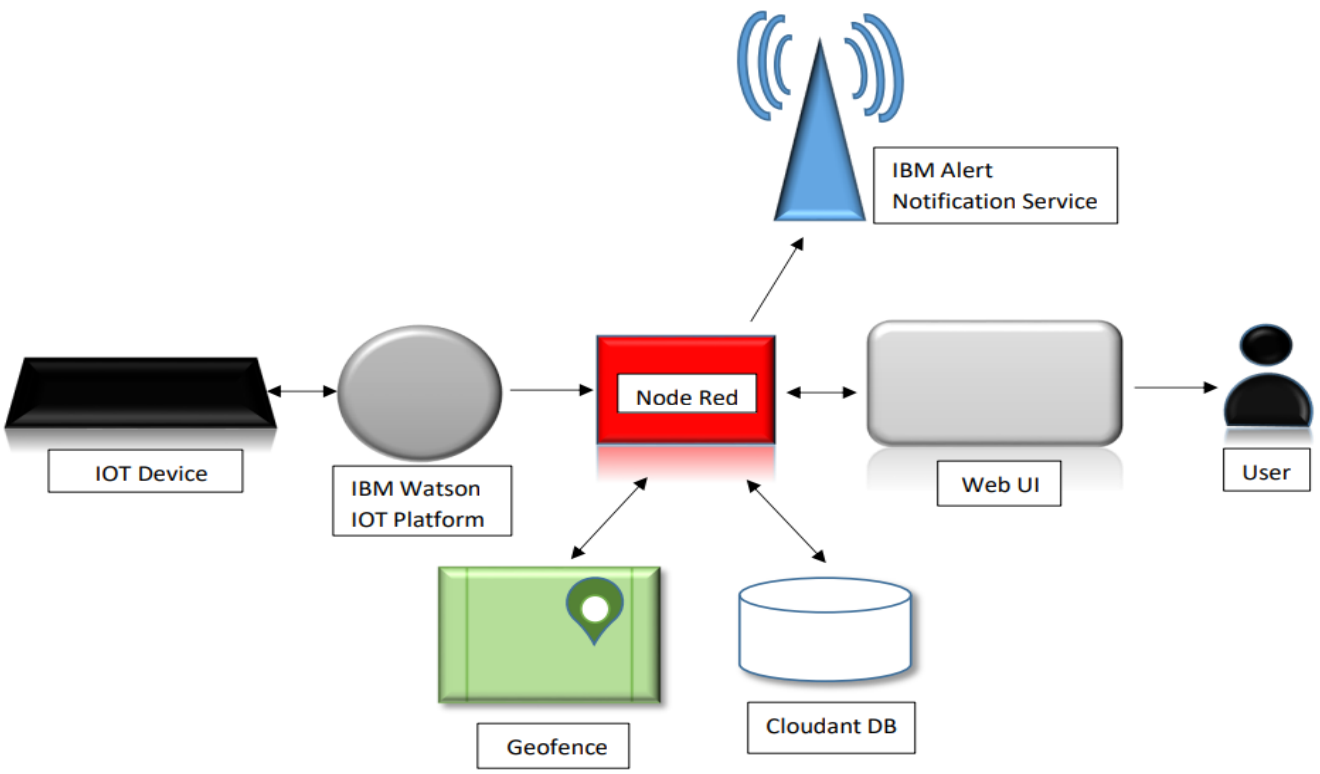
| **Date** | 30 October 2022 |
| **Team ID** | PNT2022TMID51175 |
| **Project Name** | Project - IOT Based Safety Gadget for Child Safety Monitoring and Notification |
| **Maximum Marks** | 4 Marks |

## Technical Architecture:



## Table-1: Components & Technologies:

| S.No | Components | Description | Technology |
|---|---|---|---|
| 1. | User Interface | Users had to register and outlook the other device's location e.g. Web UI, Mobile App, etc. | HTML, CSS, JavaScript / Angular Js,etc. |
| 2. | Application Logic-1 | Registration of child's and parent's device in each other device. | Python |
| 3. | Application Logic-2 | The GPS condition - ON, The device of the Parent's should always be correlated to Child's appliance. | IBM Watson STT service<br>IBM Watson Assistant |
| 4. | Application Logic-3 | The information is to be collected and dispatched to the authenticator via GSM equipping the GPS coordinates to efficiently locate access and monitor the child. | IBM Watson Assistant<br>IBM Watson STT Service |
| 5. | Database | Data Type can be any configuration such as arbitrary binary data, or text. Location history is stored in the cloud and the values include distance, latitude, and longitude. | MySQL, SQLite, InFluxDB,etc. |
| 6. | Cloud Database | Users install tracking software on a cloud infrastructure to perpetrate the database. | IBM DB2, IBM Cloudant. |
| 7. | File Storage | Files will be labelled with what they encompass and how long they should be kept. | IBM Block Storage or Other Storage Service or Local File system |
| 8. | External API-1 | The purpose of the external API employed in the device is to exploit the internet for communicating and executing allotted operations efficiently. | IBM Weather API, Aadhar API, etc. |
| 9. | External API-2 | External API laboured in the device to unveil the data that permits those gadgets to disseminate data to your device/mobile, functioning as a data interface. | Aadhar API, City Geo-Location Lookup API, etc. |
| 10. | Machine Learning Model | IOT and machine learning deliver insights otherwise hidden in data for prompt, automated retorts and enhanced governing. | Object Recognition Model, Danger Prediction Model, etc. |

# Table 2: Application Characteristics

| S.No | Characteristics | Description | Technology |
|---|---|---|---|
| 1. | Open-Source Frameworks | The framework is exemplified for child safety utilizing a Sensor network and IOT. The Key attribute of the system is the deployment of a smart detector for the collection of Data, cloud-based analysis, and decision-based on Monitoring for children's Safety. The framed solution is in the form of an android application furnishing the end user leisure surveillance of their children. | Main flux, Thinger.io, and Zetta for non-stop streaming of child condition Open remote. |
| 2 | Security Implementations | To activate the alarm and facilitate video recording whenever the emergency button is pressed. We can use the cloud to accumulate the surveillance data of the children. The Wi-Fi modules are of assistance in sending the monitoring particulars, the user will be notified with an update if any errors are found, for the efficient functioning of the device. | e.g. SHA-256, Encryption of data regarding child condition, Firewalls, Antivirus, and Data Loss Prevention. |
| 3. | Scalable Architecture | This methodology can be further enhanced by the installation of the mini camera inside a smart gadget for exemplary security and protection so that a glimpse can be caught on the live footage on the parental phone during panic circumstances. If an intricacy arises parents can see some of the attributes like the location, temperature, and heartbeat of the child along with living perspective around the children without deterrence. | Multiple Data Storage Technologies, Reliable Micro services, Automated Bootstrapping. |
| 4. | Availability | The device is used to keep tabs on your child even in a horde. It will provides the current location details of the child. This system is advanced using a board programmed in embedded C and python. It is a site that is available online. | Temperature, Pulse sensor, GPS, GSM, Web camera, Raspberry pi microprocessor. |

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| 5. | Performance | The web Page’s load time should be no more than one second for the user's elevated performance concerning simple aidance and security. The panic alert system is used during panic situation. It can be tracked via GPS The complete data of the children’s location will be stocked in the repository and the execution of the device diminishes in a less network area. | GSM tracker, High Durable Device Battery |