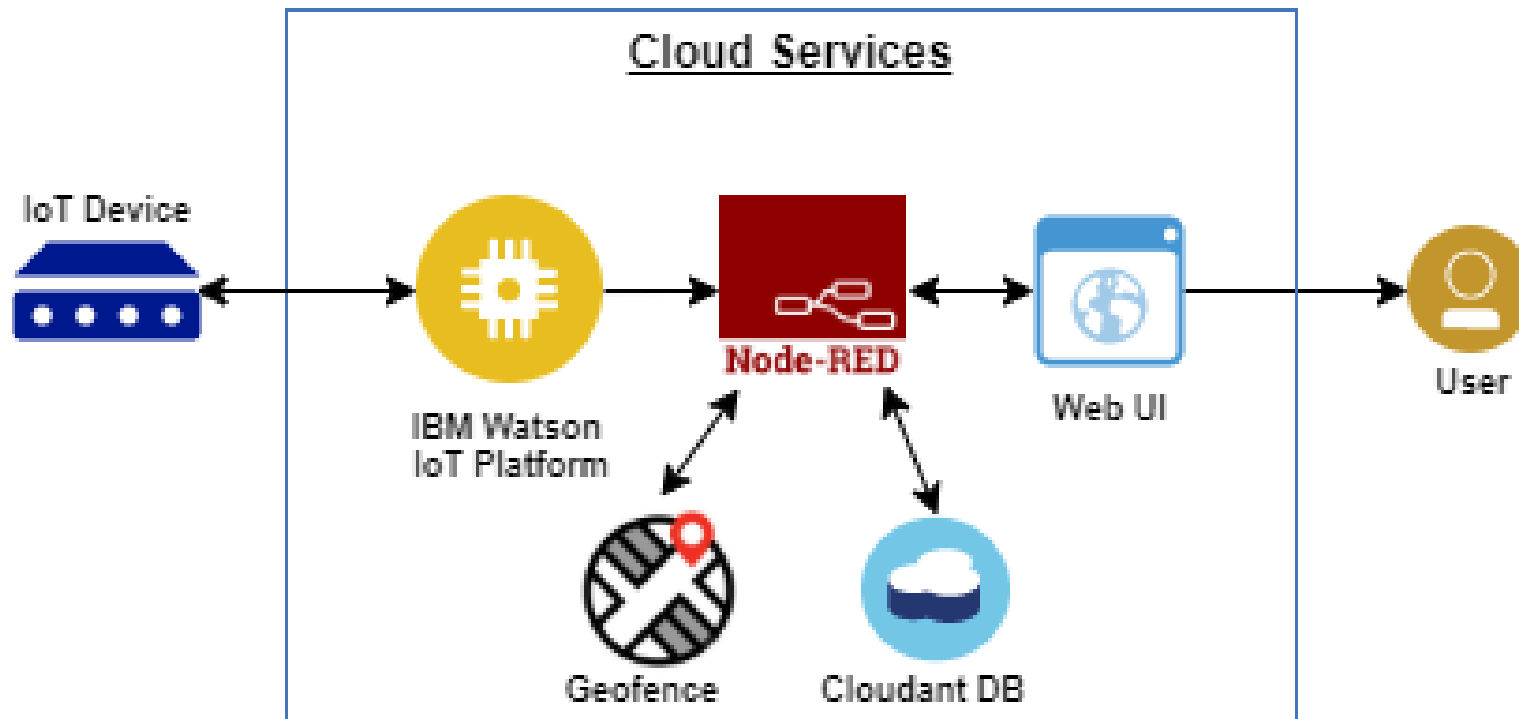


### Project Design Phase-II Technology Stack (Architecture & Stack)

Date	14 October 2022
Team ID	PNT2022TMID31301
Project Name	Project- IOT Based Safety Gadget for Child Safety Monitoring & Notification
Maximum Marks	4 Marks

Technical Architecture:

Diagram:



**Table-1 : Components & Technologies:**

S.No	Component	Description	Technology
1.	User Interface	Users had to sign up and check the location of the other device, such as a mobile app or web interface.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Devices belonging to the parent and the child might be registered with one another.	Python, Embedded C.
3.	Application Logic-2	The GPS on the child's gadget must be turned on, and the parent's device must always be connected to the child's appliance.	IBM Watson STT service IBM Watson Assistant
4.	Application Logic-3	To effectively identify and track the Child, the data must be gathered and sent to the authenticator via GSM with GPS coordinates.	IBM Watson Assistant IBM Watson STT service
5.	Database	Data Type can take on any form, including text or arbitrary binary data. Distance, latitude, and longitude are among the values that make up the location history that is kept in the cloud. The transmission of a user-defined data blob from the Cloud IOT Core to a device, etc.	MySQL, NoSQL, SQLite, InfluxDB, etc.
6.	Cloud Database	To perpetrate the database, users install tracking software on a cloud infrastructure.	IBM DB2, IBM Cloudant etc.
7.	File Storage	Documents will be labelled according to what they contain and how long they ought to be stored.	IBM Block Storage or Other Storage Service or Local Filesystem
8.	External API-1	The external API used in the gadget is there to take advantage of internet communication and effectively carry out assigned tasks.	IBM Weather API, etc.
9.	External API-2	The device's external API worked hard to reveal the data, acting as a data interface and enabling those devices to distribute data to your smartphone or mobile.	Aadhar API, City Geo-Location Lookup API, etc.
10.	Machine Learning Model	IoT and machine learning unlock insights from data that would otherwise remain buried for quick, automated responses and improved governing.	Object Recognition Model, Danger Prediction Model, etc.
11.	Infrastructure (Server / Cloud)	Deployment of Applications on Local or Cloud Systems Wearable high-tech chassis for local servers.	Local, Cloud Foundry, Kubernetes, Underlying Infrastructure,

		Cloud Server Configuration: a fantastic network that supports IoT devices both apps.	etc.
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**Table-2: Application Characteristics:**

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	The framework is used as an example for child protection using an IoT and sensor network. The deployment of a smart detector for data collecting, cloud-based analysis, and decision-based monitoring for children's safety is the system's key feature. The proposed solution takes the shape of an Android app that allows parents to watch their kids at their leisure.	Mainflux, Thinger.io, and Zetta for non-stop streaming of child condition Open remote
2.	Security Implementations	Every time the emergency button is hit, to sound the alarm and enable video recording. The cloud can be used to store the children's surveillance data. The user will receive an update if any faults are discovered, which is necessary for the device to operate properly. The wifi modules help in sending the monitoring information.	e.g. SHA-256, Encryptions, regarding child condition, Firewalls, Antivirus, and Data Loss Prevention, etc.
3.	Scalable Architecture	This technology can be improved further by installing a little camera within a smart device for exceptional security and protection so that, in an emergency, a peek can be captured on the live feed on the parent's phone. If a problem arises, parents can view certain characteristics, such as the child's location, temperature, and heartbeat, as well as the surroundings without deterring the youngsters.	Multiple Data Storage Technologies, Reliable Microservices, Automated Bootstrapping
4.	Availability	Even in a crowd, the device is utilised to monitor your youngster. Along with current location and trip information, it also gives.	Temperature, Pulse sensor, GPS, GSM, Web camera, Raspberry pi

S.No	Characteristics	Description	Technology
		A board with embedded C and Python programming powers this system. It's a website that may be accessed online.	microprocessor
5.	Performance	For the user's elevated performance in terms of simple assistance and security, the web page's load time should be no more than one second. The system's unique feature is its ability to warn parents or caregivers on demand by sending an SMS when a child needs immediate assistance during a crisis. The repository will save all of the information on the whereabouts of the kids, and in a less networked area, the device's performance will decline.	GSM tracker, High Durable Device Battery