

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

Date	03 October 2022
Team ID	PNT2022TMID32971
Project Name	IoT based safety gadgets for child safety monitoring and notification.
Maximum Marks	4 Marks

Technical Architecture:

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Users had a notification and track the children e.g. Web UI, Mobile App, etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Child's and parents devices in each other devices.	Java / Python
3.	Application Logic-2	Lack of information about child location.	IBM Watson STT service
4.	Application Logic-3	The child's GPS should be in ON condition.It facilitates and monitors services delivery and also a two communication between the services providers and benefit.	IBM Watson Assistant
5.	Database	Database of institutions related to child protection.software to update the profiles and progress of overall development of children of CCIs.	MySQL, NoSQL, etc.
6.	Cloud Database	Users install the tracking software on a cloud database.	IBM DB2, IBM Cloudant etc.
7.	File Storage	Every time your child records a video or takes a photo with their devices,it will immediately be uploading to your devices.	IBM Block Storage or Other Storage Service or Local Filesystem
8.	External API-1	Purpose of External API used to internet for communicated and allotted operation efficiently.	IBM Weather API, etc.

9.	External API-2	Purpose of External API wearable gadgets to disseminate devices/mobile.	Aadhar API, etc.
10.	Machine Learning Model	Decision tree classifier algorithm is used to detect any distress situation with sensor values as inputs.	Object Recognition Model, etc.
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: wearable in high quality mechanism. Cloud Server Configuration : massive network that supports IoT devices and applications.	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	The open-source frameworks used in child safety for each consumer desires of their preference without being restricted or bound to a specific product vendor.for example,some smart devices needed the smartphones. components are hardware devices, software appliances, cloud and communication and cloud applications.	Zetta is a server has been nodeJS, REST,and flow based reactive programming development.
2.	Security Implementations	IoT devices can contain a lot of sensitive user information. Security measures can't provide complete protection. IoT devices can be small,inexpensive. All possible IoT network connections.	e.g. SHA-256, Encryptions, sensor Controls,GPS tracking devices etc.
3.	Scalable Architecture	Scalable IoT system should use separate system called web workers where the pool can dynamically grow for data storage and analysis. IoT infrastructures becomes more scalable if the communication stacks from the smart end devices.	Multiple data storage technologies etc.
4.	Availability	Needed and the product should be able to use at any time and devices. Using a broad programmed in embedded c and python.	Temperature sensor,heartbeat sensors,GPS etc.

S.No	Characteristics	Description	Technology
5.	Performance	Design consideration for the performance of the application latency, reliability, efficiency and stability to determine how well a solution performs. Multi cloud and hybrid cloud monitoring.	High durable Battery, GSM tracker etc.

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