

Project Design Phase-I

Solution Architecture

Date	19 September 2022
Team ID	PNT2022TMID26599
Project Name	IoT Based Safety Gadget for Child Safety Monitoring & Notification
Maximum Marks	4 Marks

Solution Architecture:

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, and delivered.

REQUIREMENTS:

This project is done utilising the embedded C and python framework for AVR, ARM, and in addition to (based on Wiring) Device Boot Loader. IBM Cloud workspace is used for depository and APIs. The front end is done using XML for android.

DESIGN:

The layout and architecture of the software are done in a distinctive approach so the software can be employed and developed imminently. The Arduino acquires the region from the GPS equipment and consigns it to the cloud to inspect if the end user is within the confined zone. If the user is further away from the confined zone, an alert is sent to the catalogued mobile through the cloud. When the requisition is opened, the locality is obtained from the cloud and unveiled on the mobile.

IMPLEMENTATION:

The implementation mechanism is done and execution is terminated by progressing the logic by coding. All the vital packages are imported and for each router specific logic is developed in accordance to the usage. Development of a safety device for kids to guarantee their security in the absence of an understated examination of their parents. The various aspects involve:

- GPS
- Notify alert signal

UNIT TESTING:

Each portion of the software is designed by discreet team members, and it is tested individually by the python unit testing IoT.

INTEGRATION AND TESTING:

After unit testing, all software sections are integrated and tried out ultimately, so the flask program can be run on any platform. The testing progression encompasses Alpha testing and Beta testing.

DEPLOYMENT:

The flask application in the long run is distributed in the IAAS rostrum like IBM cloud assistance, so it can be run in HTTPS protocol alongside SSL. In the deployment process, a real-time database is fastened on the edge of real-time file storage.

MAINTENANCE:

In the wake of victorious deployment, if there is a conglomeration refurbish, it is accomplished in the software.

CATASTROPHIC FEATURES IN THE DEVICE:

ALARM RING:

The safety system redirects a warning to your phone at any occasion, it determines any pursuit. Arming methodology decides which category of alerts you get.

EMERGENCY NOTIFICATION:

An emergency notification system is a labour-saving mechanism to get in touch with a group of people within a corporation and assign salient information during a crisis.

GPS:

The GPS helps to escalate protection and fitness characteristics on the device. Depending upon the device, it can alert parents about their child's location in case of any crisis and helps to trace their route duration and distance.

Example - Solution Architecture Diagram:

