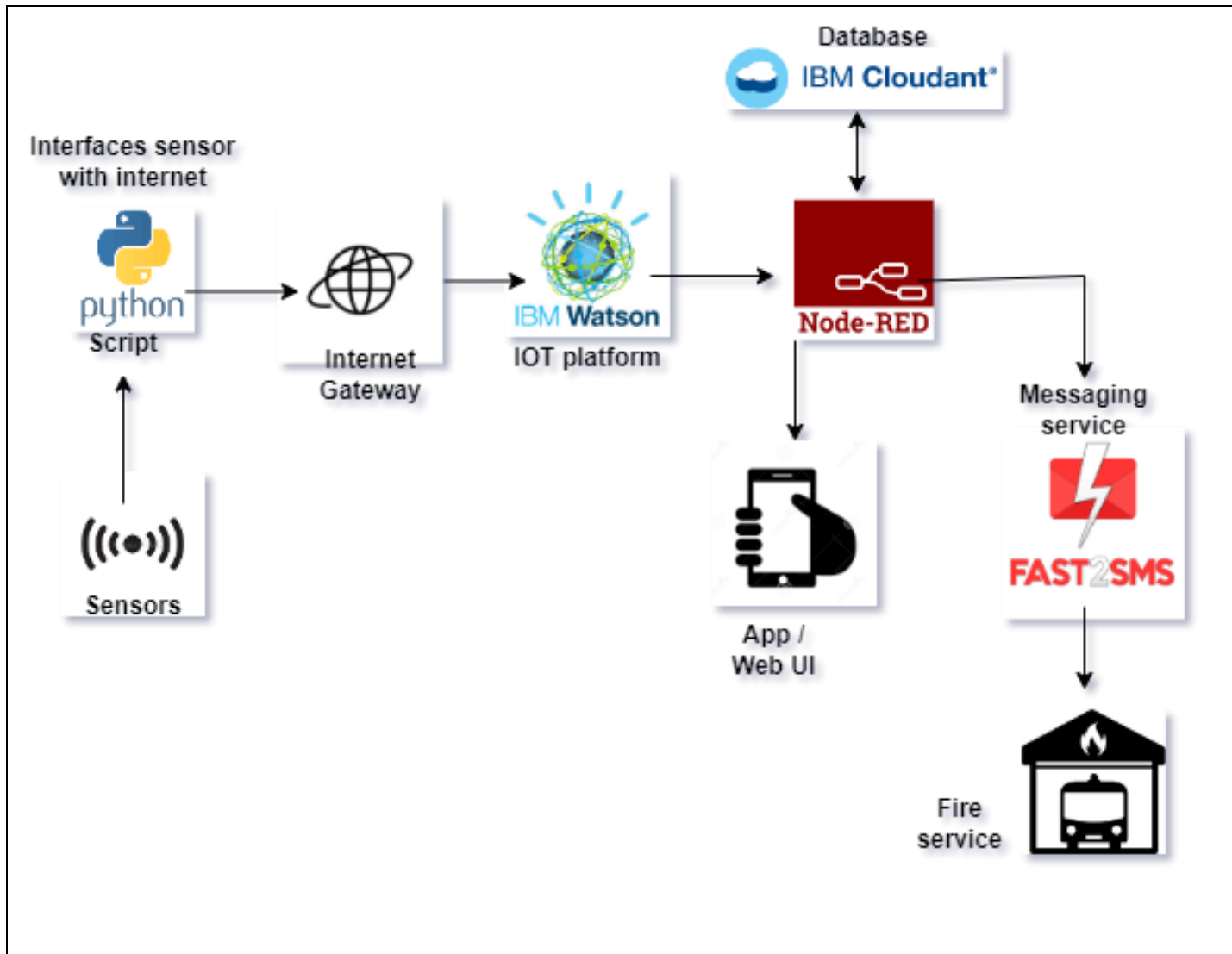


**Project Design Phase-II**  
**Technology Stack (Architecture & Stack)**

|               |  |
|---------------|--|
| Date          | 03 October 2022                                      |
| Team ID       | PNT2022TMID29660                                     |
| Project Name  | Industry-specific intelligent fire management system |
| Maximum Marks | 4 Marks  |

**Technical Architecture:**



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

| S.No | Component                       | Description  | Technology                                 |
|------|---------------------------------|--|--|
| 1.   | User Interface                  | user interacts with application e.g. Web UI, Mobile App.   | MIT app inventor                           |
| 2.   | Application Logic-1             | Reads data from the sensors and transmits to IBM Watson IOT platform.                                      | Python                                     |
| 3.   | Application Logic-2             | Processes data with given algorithm to detect fire.  | IBM Watson STT service                     |
| 4.   | Application Logic-3             | Data received from sensors are transmitted to Node Red applications.                                       | Node RED                                   |
| 5.   | Cloud Database                  | Database Service on Cloud.   | IBM DB2, IBM Cloudant etc.                 |
| 6.   | File Storage                    | JSON file system.  | IBM Block Storage or Other Storage Service |
| 7.   | External API-1                  | To connect IBM cloud with Node RED   | IBM Cloud API, etc.                        |
| 8.   | Infrastructure (Server / Cloud) | Application Deployment on Local System / Cloud<br>Local Server Configuration<br>Cloud Server Configuration | Cloud Foundry, Kubernetes.                 |

**Table-2: Application Characteristics:**

| S.No | Characteristics          | Description   | Technology   |
|------|--------------------------|---|--|
| 1.   | Open-Source Frameworks   | List the open-source frameworks used  | IBM Watson – IoT framework                         |
| 2.   | Security Implementations | List all the security / access controls implemented, use of firewalls etc.  | AES 256 algorithm, Transport layer security (TLS). |
| 3.   | Scalable Architecture    | Justify the scalability of architecture (3 – tier, Micro-services)  | IBM's Industry 4.0                                 |
| 4.   | Availability             | Justify the availability of application (e.g. use of load balancers, distributed servers etc.)                            | IBM Watson with load balancers.                    |
| 5.   | Performance              | Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc. | 1000 messages per sec, Cache Management.           |

**References:**

<https://c4model.com/>

<https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/>