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

| Date | 13 May 2023 |
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| Team ID | NMD2023TMID15296 |
| Project Name | IoT  based weather adaptive street lighting system |

**Technical Architecture:**
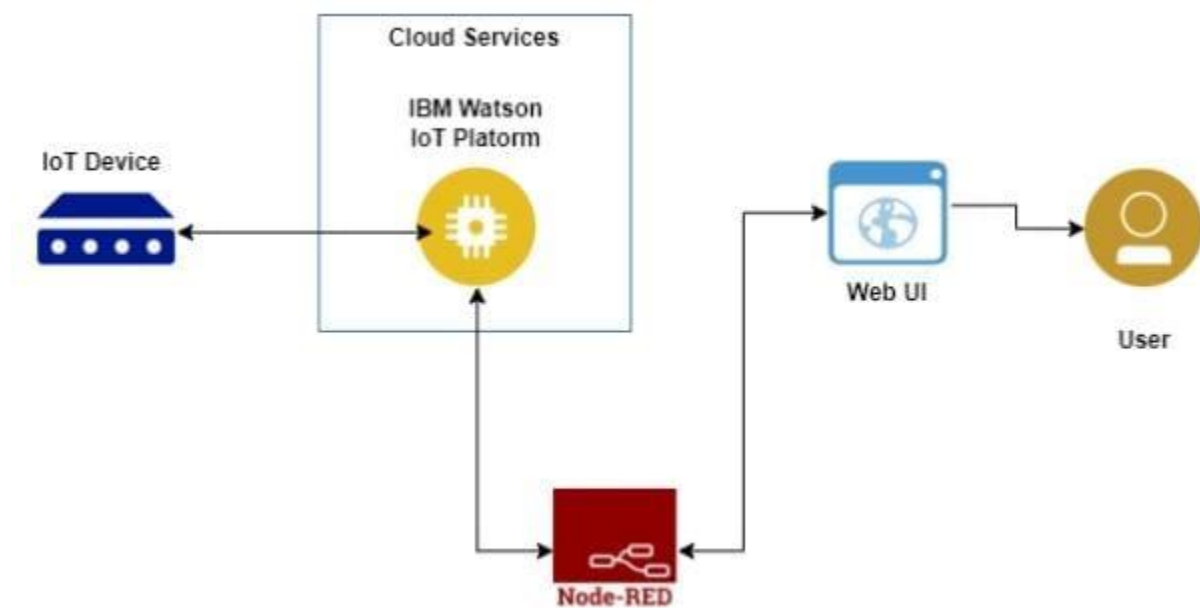


**Table-1 :  Components & Technologies**

| S.No | Component | Description | Technology |
|---|---|---|---|
| 1. | User Interface | How user interacts with application e.g. Web UI, Mobile App, Chatbot etc. | Software |
| 2. | Application Logic-1 | Logic for a process in the application | Node red , IBM Watson platform |
| 3. | Application Logic-2 | Logic for a process in the application | IBM Watson ,Node red |
| 4. | Application Logic-3 | Logic for a process in the application | IBM Watson Assistant ,Node red |
| 5. | Database | Data Type, Configurations etc. | MySQL, NoSQL, |

| | | | |
|---|---|---|---|
| 6. | Cloud Database | Database Service on Cloud | IBM Cloud |
| 7. | File Storage | File storage requirements | IBM Block Storage or Other Storage Service or Local Filesystem |
| 8. | Temperature and Humidity sensor | Measures the ambient temperature and amount of moisture in air to adjust the lighting levels | |
| 9. | LDR sensor | Helps to detect the presence of surrounding light | |
| 10. | Rain and snow sensor | Helps to detect the presence of rain and snow | |
| 11. | Wind speed sensor | Measures the speed and direction of the wind | |

### Table-2: Application Characteristics:

| S.No | Characteristics | Description | Technology |
|---|---|---|---|
| 1. | Open-Source Frameworks | Frameworks that are used to build the software | IBM Watson cloud platform, Node red, Sensors ,IoT device and a software |
| 2. | Security Implementations | Technology used to prevent the unauthorized access to the system | IDPS, Firewall |
| 3. | Scalable Architecture | Used to breakdown the system into small and manageable and ensuring no traffic is overwhelmed and also to provide lightweight | Micro services, Containerization |
| 4. | Availability | To provide lightweight , portable components that can deployed and scaled easily | Load balancers |
| 5. | Performance | According to the weather the lighting levels would get change per hour | IBM Watson cloud platform |