Here is a comprehensive Statement of Work (SOW) for the project:

1. Client Name

Luminous Inverter Manufacturing Plant, Solan, Himachal Pradesh

2. Project Name and Description

Artificial Intelligence-Based Surveillance System for Fire Detection and Prevention

3. Objectives and Goals

The primary objectives of this project are to design, develop, and implement an Artificial Intelligence (AI)-based surveillance system that can detect fire, sparks, smoke, gathering, vehicle location, unnecessary movement, human running activity, abnormal pedestrian activity, alarm, vibration, animal movement, flooded areas, and light/dark area anomalies within the plant premises. The goals are to:

* Enhance safety and security by providing real-time alerts and notifications to concerned users
* Improve incident response time by identifying potential risks and predicting occurrences
* Reduce false alarms and improve system reliability

4. Scope of Work

The scope of work includes:

* Evaluating the existing infrastructure and determining if new camera implementations are required
* Developing an AI-based algorithm that can analyze video feeds from 81 cameras (71 with 2MP, 10

with 4MP) to detect anomalies

* Integrating alerts and notifications systems via text, WhatsApp, and email for immediate resolution

* Implementing a system that clips and saves instances of such incidents for further checking and sharing with concerned users with timestamps

* Predicting occurrences based on historical data and patterns

5. Timelines (Completion Duration)

The estimated duration for this project is 12 weeks, broken down into:

* Week 1-2: Requirements gathering and planning

* Week 3-6: Development of AI-based algorithm and integration with existing infrastructure

* Week 7-8: Testing and debugging

* Week 9-10: Implementation and deployment

* Week 11-12: Training and knowledge transfer to support team

6. Resource (Total Team Head Count)

The total team head count required for this project is:

* Project Manager: 1

* Software Engineer (AI): 2

* Software Engineer (Integration): 1

* Quality Assurance Engineer: 1

* Technical Writer: 0.5

* Total: 4.5

7. Technology Stack

The technology stack for this project includes:

* Front-end: React, JavaScript, HTML5
* Back-end: Python, Django, Flask
* Full-stack: PostgreSQL, Redis, Apache Kafka
* Key Development Roles:
 + AI Engineer: Responsible for developing the AI-based algorithm and integrating it with existing infrastructure
 + Integration Engineer: Responsible for integrating alerts and notifications systems and clipping instances of incidents

8. Budget

The estimated budget for this project is $250,000, broken down into:

* Software development: $150,000 (60%)
* Infrastructure setup and testing: $50,000 (20%)
* Training and knowledge transfer: $25,000 (10%)
* Miscellaneous (travel, meetings, etc.): $25,000 (10%)

9. Deliverables

The deliverables for this project include:

* A fully functional AI-based surveillance system that can detect fire, sparks, smoke, gathering, vehicle location, unnecessary movement, human running activity, abnormal pedestrian activity, alarm, vibration, animal movement, flooded areas, and light/dark area anomalies
* Integration with existing infrastructure and alerts and notifications systems
* Documentation of the system architecture and development process

10. Support Team and Infrastructure, Data Security, Additional Considerations

To ensure the success of this project, we recommend:

* A dedicated support team to handle any issues or concerns that may arise during and after implementation
* A secure infrastructure setup to protect sensitive data and prevent unauthorized access
* Regular security audits and updates to ensure compliance with industry standards

By following this comprehensive Statement of Work (SOW), we can ensure the successful implementation of an AI-based surveillance system for fire detection and prevention at Luminous Inverter Manufacturing Plant.