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On-site Testing and Preventive Maintenance for a Fire Automation System Employing PSO, FA and ANN Algorithms

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Abstract:
Engineering elements influencing in commercial and government buildings fire safety rendition buildings have been deliberated. For both new and existing buildings, all variables such as structure of building, damage due to fire from prevention compartments, Time of incidents evacuation routes should be control leverage on people's evacuation routes, controlled, and additional standard fire protection equipment are imposed. This page outlines the classes of diesel fire pumps, batteries, and pumping systems, besides the elements prompting fire rendition. Onsite diesel generator pump must be connected to a hydrant and the water pumping pressure range must be customized to 8 bar using a pressure gauge. The substantive intent of this concert is to reinforce firefighter safety. Only experienced technicians and training professionals in fire guard are responsible for this part. To simulate the battery tightness position, an extra-critical condition has been considered. Owing to the position of the fire safety properties and battery reaction in buildings, the Firefly and Particle Swarm optimization algorithms have been exerted on the iterations with objective values used for analysis in the iterative process using Matlab 2021 software. Two well-known algorithms are compared to see which provides the best results. The ANN serves as a tool for analyzing and optimizing the pump's rendition in maintaining an adequate water supply for fire emergencies.

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I. INTRODUCTION

In an Emergency situation diesel engine fire pump will start with proper maintenance condition only. In this regard Diesel engine fire pump connections not properly maintained means it will create issue at the time of emergency suituations. Maintenance peoples will carryover the issues. During mainrenance battery terminals mainly need to check the tightness positions and battery dissolved water level. In fire fighting spot based on the study approach safety caution must be implemented and also applicative based commercially uninity regions Reading electrical components and buildings. Within the building prompt area suddenly misfortunes that occur the power to be shut off and the diesel engine pump to be manually operated. Only experienced personnel were able to operate. Need to maintain the water pressure level in water pressure pump pipeline should be satisfactorily maintained. A defective or loose connection of battery terminals disintegrate the flow of electricity.

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