**SITUATION:**
Most fires in the UAE occur in warehouses in industrial areas. Current firefighting systems in warehouses rely heavily on firefighters to manually extinguish fires. Due to heavy congestion in these areas, firefighters' emergency response time is too high to prevent loss of human lives and reduce major property damage.

**PROBLEMS & SOLUTIONS**

**CHEMICAL COMPOSITION & STORAGE TANK**

**PROBLEM**
| Decision of which element to remove from the fire triangle to ensure most efficient fire suppression depending on the class of fire (Figure 1). |
| Selection of chemicals that are not toxic or impractical for widespread usage. |

**SOLUTION**
| Creating a system that uses a combination of CO2, H2O and foam to fight fire. |
| Ensuring elimination of oxygen from the fire triangle, thus extinguishing the fire. |
| Addressing classes A, B and C of fires (4). |
| Confirming no lasting toxicity and convenient availability. |

**TURRET & PUMPING SYSTEM**

**PROBLEM**
| Adjustment of size of turret to compensate for its heavy weight (Figure 2). |
| Customization of currently used turrets to be fitted in warehouses. |

**SOLUTION**
| Scaling down the turret for a reasonable size which also reduces weight (5). |
| Redesigning the turret so it can be fitted on the walls or ceilings. |

**THE SMART CONTROL UNIT**

The smart control unit coordinates all the components in the system to respond to an emergency situation without any human interference. The control system takes preliminary measures to suppress the fire, hence reducing response time, which is a key factor in saving lives.

**SMART FIRE EXTINGUISHER SYSTEM (SFES)**

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The Smart Fire Extinguishing System (SFES) is an automated, immediate and efficient emergency response solution that can save lives and reduce fire damages.

**REFERENCES**