SPRINT 4

TEAM ID : PNT2022TMID40213
PROJECT NAME: INDUSTRY SPECIFIC INTELLIGENT FIRE MANAGEMENT SYSTEM.

IDEATION PHASE:

LITERATURE SURVEY:

Paper 1:IOT BASED FIRE DETECTION AND AUTOMATIC WATER SPRINKLER SYSTEM

Published year:2022

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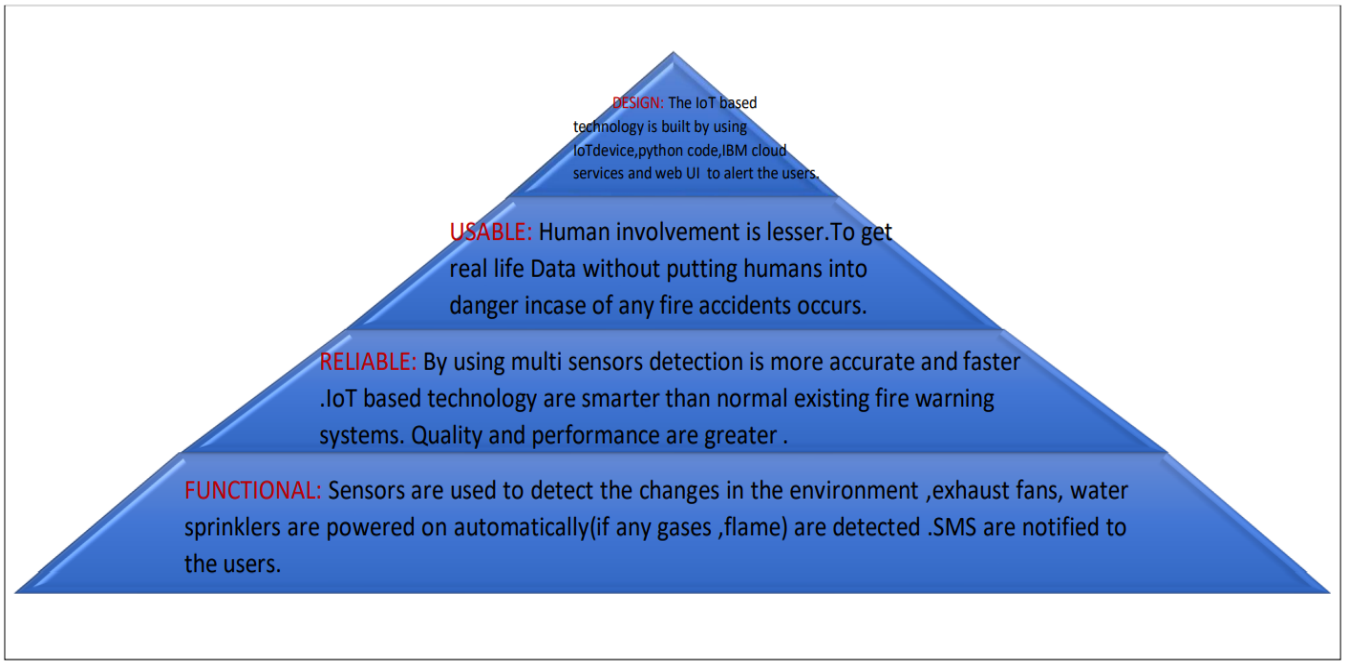
Journal name: International journal of engineering applied science and technology

Summary:In this paper, Fire detection systems, particularly vision-based systems, identify flames before any loss or destruction occurs. In this model, a novel vision-based technology is created that uses a camera to detect flames over long distances. An immediate alert is generated on android application. The goal of the proposed system is to notify the remote user when a fire accident occurs. By using camera method, the report is automatically generated and delivered to the person immediately following the fire is detected in any part of the frame using Wi-Fi/GSM.

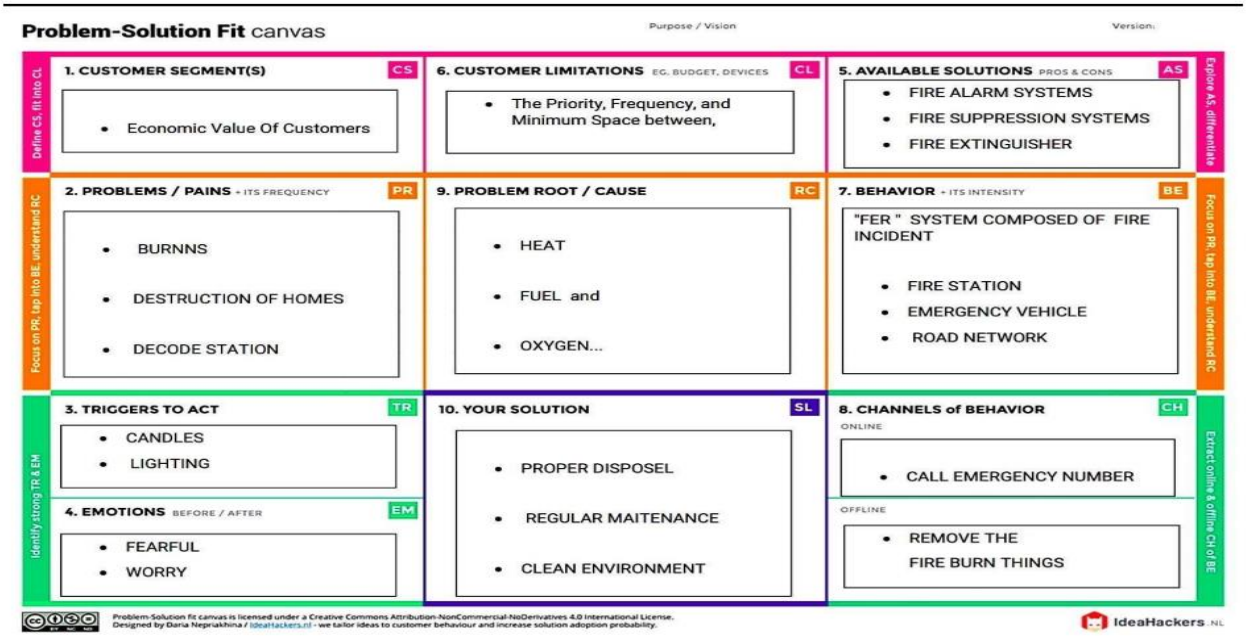
Methodology:Following the detection of a fire, our technology will take real-time photos of the surrounding area. The flame sensor determines whether or not there is a fire or flame present.A photo transistor is used in this explicit flame detector. The infrared spectral band is used by flame detection systems. Carbon dioxide, which is produced by the combustion of organic compound materials, has a resonance frequency in this range. Put anything that can catch fire in front of the flame sensor. The flame sensor is triggered when it detects a fire or flame. As temperature increases the temperature sensor will detect and it will trigger the buzzer and buzzer will blow. The water pump is connected to a IC. If a flame is detected, IC activates the dc motor and water pump. The sprinklers connected to the pump will sprinkle the water throughout the fire affected area.

SOLUTION ARCHITECTURE:

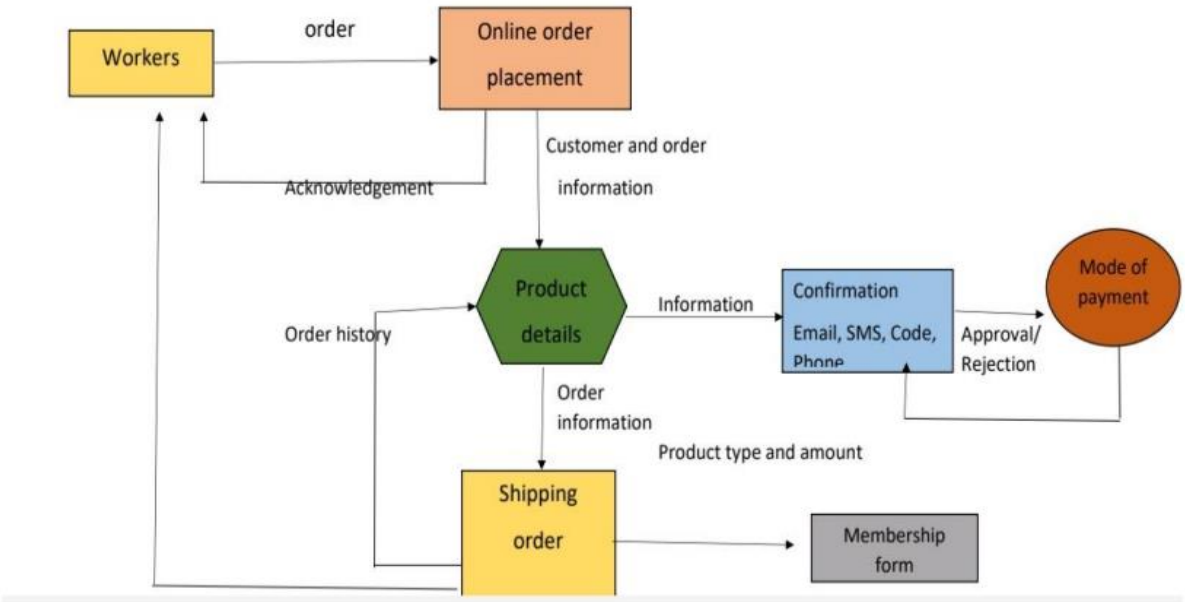


EMPATHY MAP:

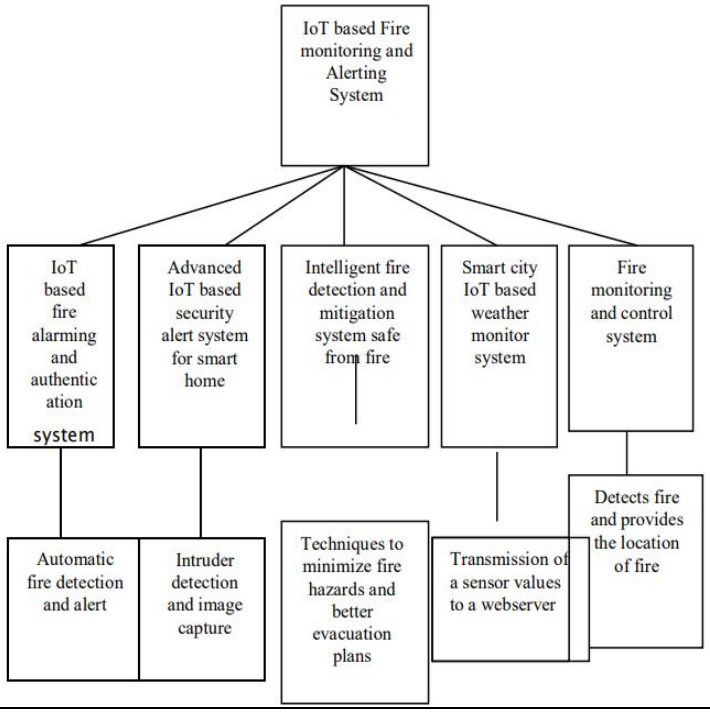
PROBLEM SOLUTION SET:



DATA FLOW DIAGRAM:



Architecture and Data flow of the IOT Based Industry – specific Fire Management System



ADVANTAGES:

- Cost effective for larger applications.
- The location of a fire condition is detected and recorded at each individual device , identifying exactly where the fire is ocuring.
- This will improve response time for emergency responders.

DISADVANTAGES:

- The one thing most fire alarm system inspectors caution against with wireless systems is having to replace the battery. The system is essentially useless if the batteries aren”t changed , since it won”t work properly.

- Future scope:

  The fire safety systems market was valued at USD 10.89 BILLION in 2020 and is expected to reach USD 16.76 billion by 2026, at a CAGR of 7.5% over the forecast period 2020- 2026 . knowing all, future alarm systems will be software based , where one needs to find a way to train one or two programmers to avoid being dependent on the equipment supplier. This can be help supplier and should lead to better pricing. Also improvement of sensors capabilities and communication channel technology, IoT devices present in industries and residential spaces have boosted thee adoption of new tech fire safety solutions.