

AUTOMATIC FIRE FIGHTER BOT

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Abstract : Fire Accident is one of the most dreadful and undesirable event which emits heat or flame. The flame has the potential to damage and result in human life and material loss. In last four years, the average death per day due to fire accidents have raised steeply to 62. The reason is the delay in the arrival of fire rescue men, which is inevitable. Hence, there is a need for a suitable arrangement in the building which assist the Fire men by controlling the fire until they come.

The existing system is a remote controlled robot. The robot is quick, effective and human dependent. It sprays fire suppressant whenever the operator opts it. It can't perform work on its own. The Sprinkler systems were also established in the buildings to serve this purpose. The main drawback is the wastage of Water and it is not reliable. The Proposed system is fully automatic and hence it does not require any human interaction. It overcomes the disadvantages of the existing system. The robot is triggered by the Photo-voltaic Cell. It uses a camera to detect the fire breakout region as soon as it gets trigger. The image obtained from the Camera is processed using NI LabVIEW and Vision Assistant.

The VISMO add-on helps in analysing and processing the image and to extract the data from the image. The robot is provided with the microprocessor and FPGA module which provide the independency to function. The fire traces detected are plotted and the path is traced. The path tracing algorithm is completely based on priority regions. The sides are split with respect to the robot and area containing the maximum area of fire is found. The hot-spot of each flame is located and they are traced from the robot to make a path. On reaching the first hot spot, it sprays the fire suppressant against the fire and extinguishes it. On extinguishing, it moves towards the next hot-spot and thus continues assisting fire rescue men.

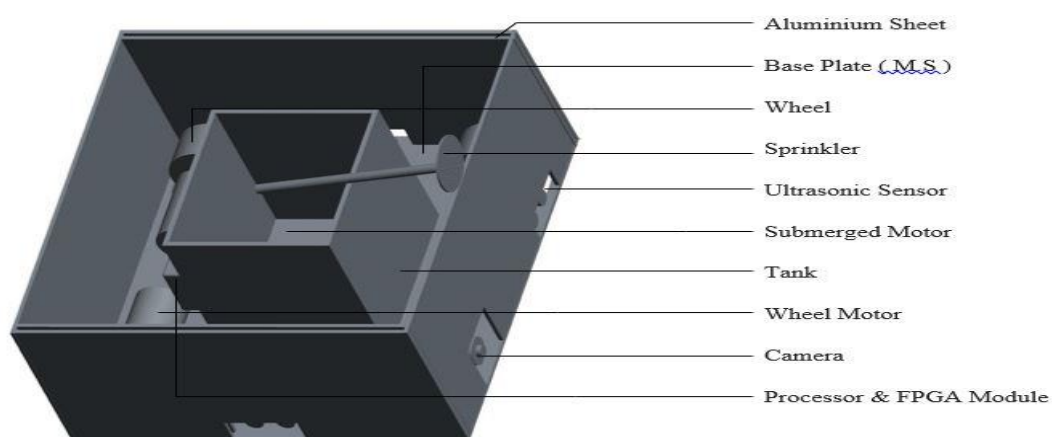


Fig.1: Solidworks model of the proposed system

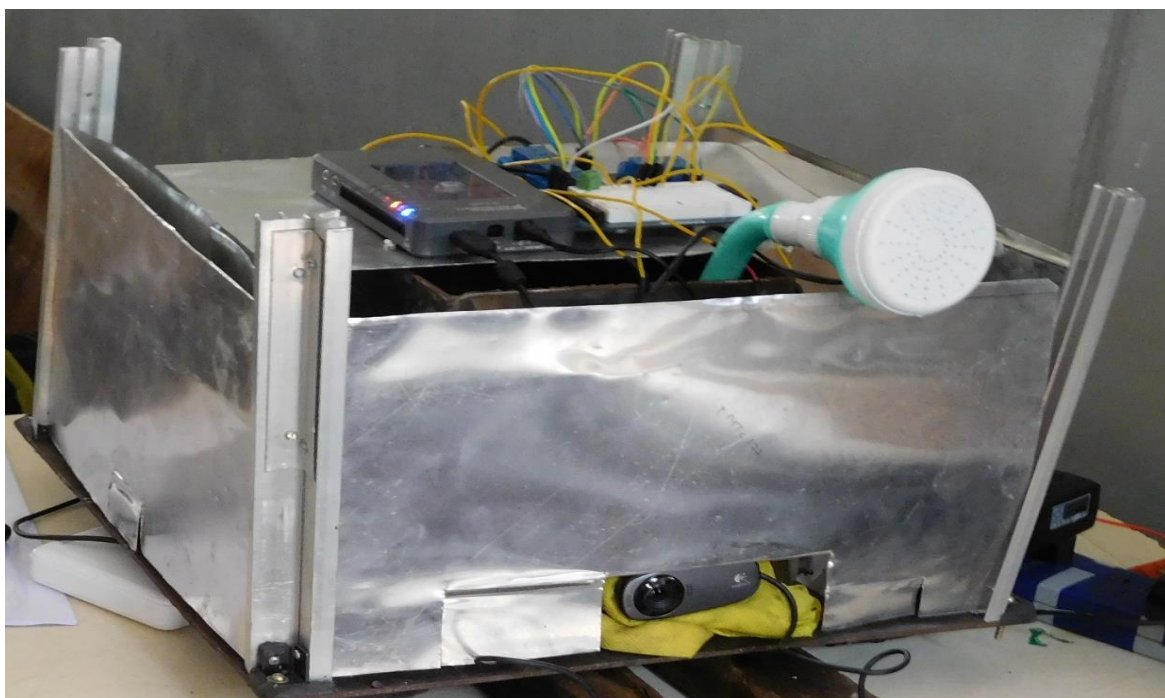


Fig. 2: Proposed System