

## ABSTRACT

**Swarm robotics** is a new approach to the coordination of multi-robot systems which consist of large numbers of mostly simple physical robots. The desired collective behavior emerges from the interactions between the robots and interactions of robots with the environment. This approach emerged on the field of artificial swarm intelligence, as well as the biological studies of insects, ants and other fields in nature, where swarm behavior occurs.

Swarm robotic implementation consists of group of three robots and GPS simulation system. The task assigned for group is to search for the fire in an arena and inform the GPS simulation system. So that the simulation system can find the position of each robot in the arena and inform the other robots about the position of the fire sensed robot. The other robots are guided to the location of the fire by the simulation system and they will assist the fire sensed robot to put out the fire.

GPS simulation system is implemented using a webcam and program running in the PC. The camera output is sampled and analyzed using image processing techniques to determine the location of robot when necessary.

## HARDWARE SECTION- BLOCK DIAGRAM

