

Development of IR-based short-range communication techniques for swarm robot applications

ABSTRACT

This paper proposes several designs for a reliable infra-red based communication techniques for swarm robotic applications. The communication system was deployed on an autonomous miniature mobile robot (AMiR), a swarm robotic platform developed earlier. In swarm applications, all participating robots must be able to communicate and share data. Hence a suitable communication medium and a reliable technique are required. This work uses infrared radiation for transmission of swarm robots messages. Infrared transmission methods such as amplitude and frequency modulations will be presented along with experimental results. Finally the effects of the modulation techniques and other parameters on collective behavior of swarm robots will be analyzed.

Keyword: Swarm robotic; Infrared; AMiR; Modulation methods