RNS Institute of Technology

Department of Mechanical Engineering

Swarm Robotics for Agricultural Development

India is an agriculture-based country where majority of the population earn their living through farming. The method of farming used, is of a traditional one due to poor income. This is sufficient to satisfy the energy requirement of farming as compared to other countries in the world. Swarm robotics is a new approach to the coordination of multi-robot systems which consist of large numbers of mostly simple physical robots. It is an emerging area in collective robotics which uses a fully distributed control paradigm and relatively simple robots to achieve coordinated behaviour at the group level. Swarm robotics systems are self-organizing, meaning that constructive collective (or macroscopic) behaviour emerges from individual (or microscopic) decisions robots make. Hence, to replace the animal and human efforts, an advanced group of prototype swarm robots that would perform all the majority functions of farming were designed and fabricated. A group of two multipurpose agricultural robots that will coordinate with each other and perform drilling, seeding and watering operations were designed and fabricated. Major part of the project focuses on the proposed design concept and concludes by discussing upon the physical working model developed for the proposed design solution.