

To understand swarm robotics, we need a working definition of its main terms. Let us start with the term 'robot'. The official definition of robot is "a machine capable of performing a complex series of actions through external and internal control". Using this as a base definition, we are going to try to reshape it for our purposes.

Defining 'Robot'

Let us start by asking if a cell phone is a robot, after all it can perform complex series of tasks and actions through both external and internal control. The common consensus on cell phones as robots is a no (sadly), so let us adjust our definition accordingly. Going forward we will define robot as requiring no immediate human intervention to execute a complex series of tasks. So now we can say that a cell phone is solidly not a robot. What about a toaster then? Past turning it on , the toaster takes care of all the incredibly complex doings to toast bread itself. So, by some stretch our current definition would say it is a toaster. Once again lets re-work our definition, this time we will require that a robot must the preform complex actions using sensory information. As such then toasters fall out of the realm of robots as they do not use sensors. So, let us review our current definition of robot, "A machine capable of preforming a complex series of actions, without human intervention, using sensory information."

Defining 'Swarm'

So, what does the word 'swarm' mean in swarm robotics? Think of a swarm of ants, and how they signal each other towards food, or bees and how they might swarm to protect their hive. These are a group of smaller being, cooperating and communicating to achieve a larger goal. Taking this definition to robots, we define swarm robotics as using a set of robots that communicate and cooperate with each other to achieve a larger goal. And with this, I hope we have given a sufficient definition of the term swarm robotics.