Abstract

One of the major areas of Research & Development (R&D) that has made a drastic improvement in Computer Science and electronics is 'Automation' and 'Artificial Intelligence'. Autonomous Systems are self-governed and does not require any manual interventions. This paper presents an overview of previous developments and the working of Robotic arms along with its mathematical aspects. Arm assembly is used to supplement the robot’s gestures and allows it to grasp and move objects. Arduino-board and other electronic circuits can be used to drive arm actuators by programming. A robotic arm can have a wide range of applications including pick-and-drop, imitating human arm, drawing
Dynamics of Robotic Arm

objects with programmed intelligence, throwing light-weight objects based on mathematically governed functions. Once designed and implemented arm can be mounted to the mobile base so as to allow itself a complete plane of locomotion. The human arm is considered to have rotational ability mainly at shoulder, elbow and wrist. The actuators that control the shoulder and, to a lesser degree, the elbow have to carry the load of the entire arm, hand, and payload. The major simulative actions of robot can be implemented based on "Learn-and-Improve" baseline which is called as Reinforcement Learning. In nutshell, the robot can perform a task iteratively analyzing errors from its previous attempts and improving in every successive attempt. The algorithms involved in these actions decide complexity of operation.

References

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Index Terms

Computer Science  Artificial Intelligence

Keywords

Robotic Arm  Reinforcement Learning  Autonomous.