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Mobile Apps II

Week 10 Summaries

Article 1: How the MIT Mini Cheetah Robot Learns to run entirely by trial and error

A four-legged robot called the “mini cheetah” broke the record for the fastest running robot at the speed of 3.5 m/s. The robot created by MIT researchers relies on trial-and-error simulation instead of manually programming the robot what to do when any new terrain is encountered. This robot was created by the new learning approach that lets the robot learn to run in a simulation using neural networks as controllers. This eliminates tedious task of location the error and a fix to have the robot run properly on a new terrain. Use of stimulation tools helps the robot accumulate experience of navigating different terrains when encountered in real world. The researchers are also working on a robotic hand that can manipulate objects using the same logic used to create this mini cheetah.

Article 2: Tiny Wireless Sensors Float in the Wind Like Dandelion Seeds

This wireless sensor can monitor how the temperature, humidity or any other environmental conditions vary across a large land. This tool could be a very important asset for digital agriculture as well as to monitor climate change. However, the issue with this sensor is that they are very time consuming and are not cost friendly to place those sensors across a piece of land. While coming up with the design, one of the important factors for the research team was to make sure that this system took time to fall to the ground which would allow for it to be tossed around by the air. They tested 75 designs to make sure they achieved their goal of the system traveling further with the wind. To power the system, solar panels are used rather than batteries and according to their trials, the device landed with solar panels facing up for 95% of them. The benefit of having solar over batteries is that there's nothing in the system which can run out over time. It can do what it's designed to do until it physically breaks down.

Bibliography

@misc{gordon_2022, title={How the MIT Mini Cheetah Robot Learns to run entirely by trial and error}, url={<https://scitechdaily.com/how-the-mit-mini-cheetah-robot-learns-to-run-entirely-by-trial-and-error/amp/>}, journal={SciTechDaily}, author={Gordon, Rachel}, year={2022}, month={Mar}, abstracts={This article is interesting because of the use of trial-and-error simulation which can greatly reduce time and effort for engineers. It is important because this method can be used to design future robots and can greatly save the time of engineers to work on other aspects.}}

@misc{university of washington_2022, title={Tiny wireless sensors float in the wind like Dandelion Seeds}, url={<https://scitechdaily.com/tiny-wireless-sensors-float-in-the-wind-like-dandelion-seeds/>}, journal={SciTechDaily}, author={University of Washington}, year={2022}, month={Mar}, abstracts={The reason why it's interesting is because of how light and small it is. Even a technology as Small as this can perform a task of getting environment information. It is Important for ecological research and for agriculture purposes as well as climate changes, as it is one of our main concerns to save the earth}}}