Contents

Roomba Vacuum cleaner

I. Performance

❖ Quality of cleaning

Perhaps the most important performance measure for this AI system is its quality of cleaning a room. The amount of dirt cleaned up by the device is one of the major performance measures.

❖ Amount of time and distance taken

The system should be able to clean a given room with the minimal amount of time and distance covered. Efficiency can also be related to recognizing obstacles in path to the maximum accuracy and handling the situation in the appropriate way. All of this factors are also used for performance measure.

❖ Amount of Electricity Consumption

The amount of cleaning the system could support on a single battery charge is also another performance measure that can be taken for this system.

❖ Safety and Security

This is one of the prioritized performance measures for any AI system. The AI system is expected to be harmless to humans and it environment in any way. The system is also expected to be secured from cyber attacks and this to can be taken as a measure of performance.

II. Environment

❖ Floor

Can be wooden, concrete or carpet-covered

❖ Obstacles

Which include tables, chairs, TV stands, Legos and the like. It may even include standing people, pets and the like.

III. Agent's Actuators

❖ Wheels

Which help the device to move around to clean up the desired space.

❖ Brushes

This are used to accumulate the dirt before it gets vacuumed into the device.

❖ Vacuum sucker

This actuator is used to take in the brushed up dirt into the dirt accumulator.

❖ Dirt extractor

This is used to remove the vacuumed dirt from the accumulator to a disposing area like trash baskets.

IV. Sensors

❖ Touchable Buttons and Remote Controller

The systems percepts the commands to clean, pause, charge and turn-Off through its button and remote controller sensors.

❖ Dirt Detection sensors

This sensors will pick up where the dirts are lying on the floor so that the it cleans them up.

❖ Cliff Sensors

This help the device system to not fall of a cliff like structures and holes so that it just stays and cleans the floor it is supposed to.

❖ Bump Sensors

This helps the AI systemic device keep its balance by not going into bumps.

❖ Infrared Wall sensors

Helps the device to turn around and choose another direction when it is faced with a wall.

Apple's Siri

i. Performance

❖ Speed of Voice Recognition

One of the performance measure that takes into account the speed at which the AI system recognizes input. The input can be of text or voice form. The AI system should maximize the speed of Recognition as much as possible.

❖ Accuracy of voice recognition

Used to measure the accuracy of the recognized message compared to the original input message. This feature specially measures the performance of the voice recognition part of Siri. Maximizing Accuracy results in a better performance measure.

❖ Speed of response

Concerned with the speed at which the AI system (Siri, in this case) responds to the incoming request. Maximizing the speed of response maximizes the performance measure.

❖ Accuracy of response in accordance to request

The system must be able to give the right response to the question provided. No unexpected results should be outputted by the system.

❖ Battery consumption

The system should minimize its battery consumption as much as possible for better performance. Hence, minimizing battery consumption results in better performance measure.

❖ Privacy and Security

Siri must be able to identify its owners voice not accept requests from imposter voices for the sake of privacy and security. This is one criteria for the performance measure and it has been added to Siri functionality in recent years.

ii. Environment

Siri only works on apple products only so apple products like IPhone, IPad, MacBook and other apple products are the only devices that serve as environment.

iii. Actuators

❖ Speaker

Siri outputs a response using two main methods. One of them is using the speaker to give a voiced output.

❖ Screen Display

The other method of giving output is a text output using screen. This is optional and is turned on by activating Type to Siri setting.

iv. Sensors

❖ Voice recorder/ microphone

This sensor is used as the main method of request input. Siri mainly communicates using voice and uses the microphone as a primary sensor.

❖ Text input (Type to Siri)

A secondary option to recognize input. Activated in setting

❖ Voice recognizer

A “not fully developed” sensor used to identify the voice of the owner to improve privacy and security.

❖ Infrared Proximity sensor

A sensor used by Siri to decide if it should stay active or not based on the proximity of a user to the phone.