Project1 summary

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Delivery robot provides the last part of the delivery service which sends packages to the customer's hand. Nowadays, there are three types of mainstream delivery bots. The first one is to travel in the building. The second one is to travel on the roadside. The third one is to drive on the road or using drones to deliver packages. The first two types of relatively mature products are already available and in use. The latter two are still in the development stage because they need to deal with more complex environments. This topic is about hardware and software for an indoor delivery robot. We plan to build a robot to help patients and doctors in the hospital.

The robot can help doctors to send drugs to the patients and doctors . Throw the rubbish. Personnel can focus on higher-value activities. Nurses can focus on tending to patients. More predictable delivery because robots don't need breaks or downtime. Less costly than having people do the transportation. Faster delivery. With a fleet of robots, there's no waiting for the next delivery person to be available. The customer can retrieve their goods without contact with another person. Contactless delivery is vital in a pandemic environment.

I plan to focus on the hardware of the robot.

The first part is motor

Brushless DC Motor. High power-to-weight ratio, high speed, almost immediate control of speed (rpm) and torque, high efficiency, and cheap maintenance are all benefits of brushless motors over brushed motors. Applications for brushless motors include computer peripherals.

Stepper Motor Driver

The driver circuit that makes it possible for the stepper motor to operate as it does is known as a stepper motor driver. For instance, stepper motors need enough controlled energy to complete specific phases in a specific order. Stepper motors are therefore regarded as being more sophisticated than standard DC motors.

Another crucial component of the robot is the temperature sensor, which will ensure that nurses and residents do not frequently come into contact with one another. The temperature sensor will be able to measure the patient's temperature and then communicate that data to the nurse using the Raspberry Pi. To get the patient's hand in the right range for the right temperature, we will combine the temperature sensor with an ultrasonic sensor.

Microcontroller. Microcontrollers make it affordable to digitally control even more devices and processes since they are smaller and less expensive than designs that require individual microprocessors, memories, and input/output devices. In order to control non-digital electronic equipment, mixed signal microcontrollers are frequently used. Microcontrollers are a popular and affordable method of data collection, sensing, and controlling the physical world as edge devices in the context of the internet of things.

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