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TO PASS 80% or higher

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GRADE
100%

Unit 4 Homework

LATEST SUBMISSION GRADE
100%

1. This course provides eight optional demo edit videos (one per unit). Below is a Word document with the original texts of all eight essays. Choose one of these essays to edit. Provide your full edited version below.

   Grading is based on completion only. After submitting your edit, please watch the demo edit video that corresponds to the essay you chose.

1 / 1 point

Original texts for demo edits.docx

Original:
Scientists are still looking for small size smart robots that can navigate in dynamic and unknown environments. This challenge inspired Tahmid Latif and Alper Bozkurt from North Carolina State University to use cockroaches as biobots (biological robots). They developed a wireless biological interface that uses an electronic interface to remotely steer cockroaches. This concept helps to create a mobile web of sensors that uses cockroaches to collect and transmit data, such as locating survivors in hard areas during earthquakes.
Cockroaches have antennas -called cerci- to sense: tactile, temperature and humidity. Researchers used these antennas to drive the cockroach by sending a series of electrical pulses to it. The system consists of: a microprocessor with Zigbee interface [1], electrodes and a battery. The user controls the microprocessor wirelessly using a Zigbee transceiver; the microprocessor sends electrical pulses to the cockroach's antennas using electrodes and then the cockroach moves.
Tahmid Latif and Alper Bozkurt used Madagascar Hissing cockroach during their analysis because of: its larger size (~50-75mm), slow speed (~3cm/s), long life span (~2 years) and robustness. Before the experiment starts, they anesthetized the cockroach by cold-treatment (4C) for 45-60 minutes. They attached one side of the electrodes (5cm long stainless steel coated with 250um thick Teflon) to the antennas to serve as electronic reins, injecting small charges into the roach's neural tissue. The charges trick the roach into thinking that the antennas are in contact with a physical barrier, which effectively steers them in the opposite direction. The researchers evaluated two microprocessors that control the electrodes: Microchip's PIC16F630 [2] and Texas Instrument's CC2530 [3]. CC2530 was better because of its low weight (500mg), Zigbee module connectivity and the availability of 21 general purpose I/O. CC2530 gets its power from the 90mAh Li-Po battery.
Cockroaches followed an S-shaped trajectory drawn on the laboratory floor and spent 81 sec. with 10% success rate to complete the route. This finding opens the door to scientists to start using insects in biobots world but the system's overall weight is still a concern in this new field and needs more studies to reduce its size.

Edit:
Scientists are looking for small but smart robots that can navigate in dynamic and unknown environments, such as the aftermath of an earthquake. This challenge inspired Tahmid Latif and Alper Bozkurt from North Carolina State University to turn cockroaches into biobots (biological robots). Their remotely controlled cockroaches could someday serve as a mobile web of sensors that collect and transmit data from hard-to-reach places.
<INTRODUCTION>
Cockroaches have antennas (called cerci) that can sense tactile input, temperature, and humidity. Latif and Bozkurt created a wireless device that attaches to these antennas and can deliver small electrical pulses that drive the cockroach. The charges trick the roach into thinking that the antennas are in contact with a physical barrier, which effectively steers them in the opposite direction. <OVERVIEW>
The device consists of: a microprocessor with Zigbee interface [1], electrodes and a battery; the user controls the microprocessor using a Zigbee transceiver. The researchers tested two microprocessors: Microchip's PIC16F630 [2] and Texas Instrument's CC2530 [3]. They incorporated the CC2530 in their final device due to its low weight (500mg), Zigbee module connectivity, and the greater numbers of I/O ports. <METHOD>
Latif and Bozkurt used the Madagascar Hissing cockroach because of its larger size (~50-75mm), slow speed (~3cm/s), long life span (~2 years), and robustness. After anesthetizing the cockroaches by cold-treatment (4C) for 45-60 minutes, they attached one side of each electrode (5cm long stainless steel coated with 250um thick Teflon) to the antennas. <EXPERIMENT>
In tests of the system, cockroaches followed an S-shaped trajectory drawn on the laboratory floor and spent 81 sec with 10% success rate to complete the route. <RESULTS>
This system is still too large because...This finding opens the door for scientists to start using insects as biobots. Someday, armies of cockroaches may be the best hope for rescue for natural disaster survivors. <CONCLUSION>

Correct

Now watch the corresponding demo edit video to see how I approached editing the same essay.