



F2.8 Project: parking sensor

Decisions and loops · GCSE · about 25 min

Name _____

Class _____

Date _____

What this lesson is about

A while loop, decisions and the buzzer: beep faster as the wall gets closer, and park.

- The brief
- Plan
- Step 1: drive to the bay
- Step 2: a beep that depends on the distance
- Step 3: put them together
- Testing

Questions

4 marks in all

1. Why does the parking sensor use a while loop rather than a for loop? [1 mark]

- ☐ A The robot cannot know beforehand how many times round it will take
- ☐ B for loops cannot use the sensor
- ☐ C while loops are faster
- ☐ D for loops cannot contain if

2. What does this program print? [1 mark]

```
d = 35
if d > 50:
    gap = 0.4
elif d > 30:
    gap = 0.25
else:
    gap = 0.1
print(gap)
```

3. The robot stops slightly closer to the wall than BAY. Why? [1 mark]

- ☐ A It coasts a little after stop()
- ☐ B distance() is always wrong
- ☐ C BAY is a string
- ☐ D The loop runs one extra time on purpose

4. Where must `beeps = 0` go? [1 mark]

- ☐ A Before the loop
- ☐ B Inside the loop, before the beep
- ☐ C After the loop
- ☐ D It is not needed

The task: parking sensor

Drive to the wall, beeping faster as it gets closer, and stop in the green bay without touching the wall. Then play a long note, turn the LED red and print one line in exactly this shape (your numbers will differ):

```
# the two lines every program starts with: the commands, then the robot
from bugbot import *
connect()

BAY = 20
beeps = 0

while distance() > BAY:
    forward(30)
    wait(0.1)
stop()
```

Plan your program here, then type it in and press Run.



Do it on the robot

www.bugbotlab.com/learn/f2-8-project-parking-sensor/

The simulator checks it and tells you when it passes. Nothing to install, no account.

Challenges

1. Make the note get higher as well as faster when the wall is close.
2. Add a fourth band that holds a continuous note under 15 cm.
3. Reverse away from the wall afterwards until it is 50 cm away, beeping the other way round.