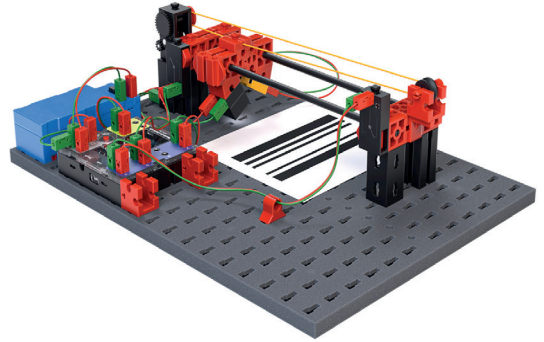


Model 9: Barcode reader

Objectives and classification

Overview

The reading of codes attached to objects plays a very important role in automation technology and logistics. As reading letters and Arabic numerals is complex and prone to errors, barcodes („bar codes“) became established decades ago - e.g. for books (ISBN) and food (EAN codes). Two-dimensional barcodes and QR codes are further developments of this coding.



The subject of this model is the encoding of numbers using barcodes and the programming of a simple mechanical barcode reader.



Topics

How does a barcode reader work? What is the meaning behind the bars of a barcode?

Learning objectives

- Understanding the functional principle of a barcode reader
- Programming a simple barcode (counter)

Time required

It takes some time to set up the barcode reader. One lesson should be set aside for the introduction to the topic of the model, the construction of the reader and the first task in which the reader head is tested.

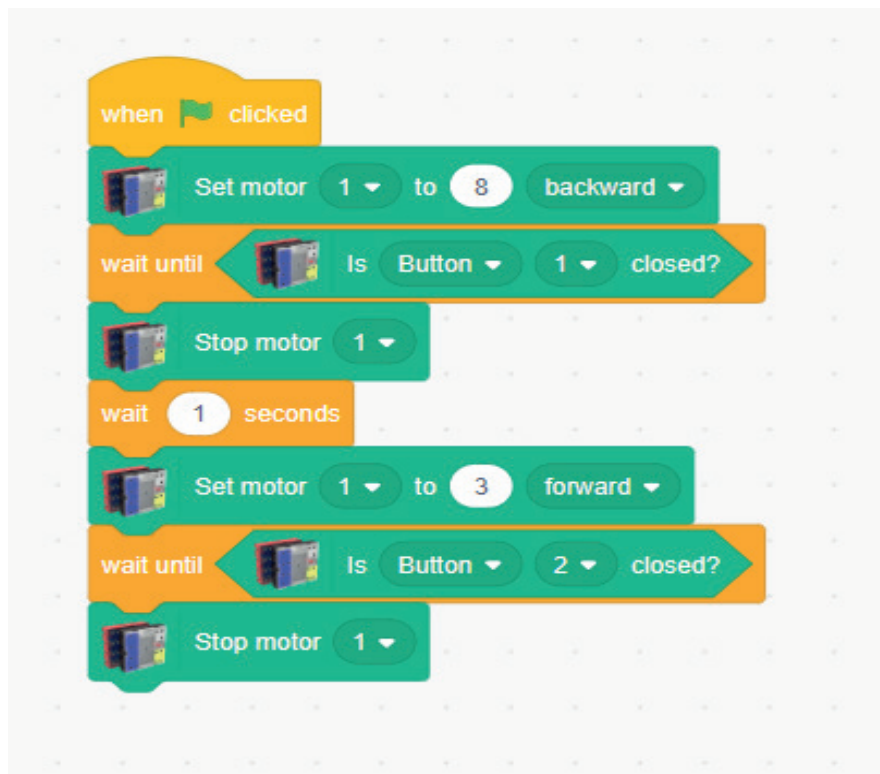
Solving the tasks „Move reading head“ and „Recognize lines“, including tests and troubleshooting, takes about another lesson.

The experimental tasks „Read number code“ and „Output number code“ require a third lesson.

Solutions and notes

Programming tasks Model 9: Barcode reader

Suggested solution Task Move read head:



move reading head.sb3

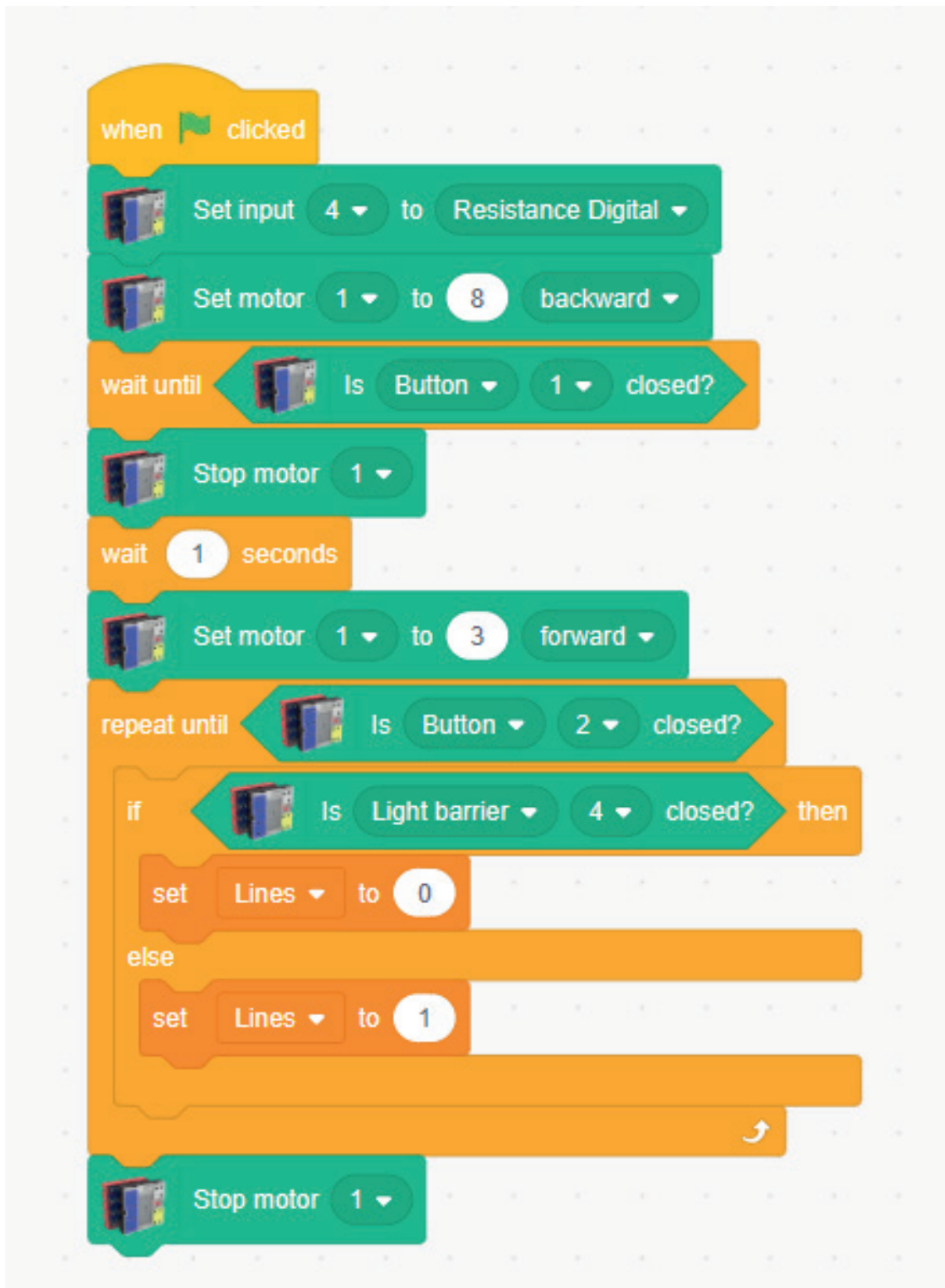
Solutions and notes

Programming tasks Model 9: Barcode reader

Solution Recognize lines:

```

when clicked
  Set input 4 to Resistance Digital
  Set motor 1 to 8 backward
  wait until Is Button 1 closed?
  Stop motor 1
  wait 1 seconds
  Set motor 1 to 3 forward
  repeat until Is Button 2 closed?
  if Is Light barrier 4 closed? then
    set Lines to 0
  else
    set Lines to 1
  Stop motor 1
  
```

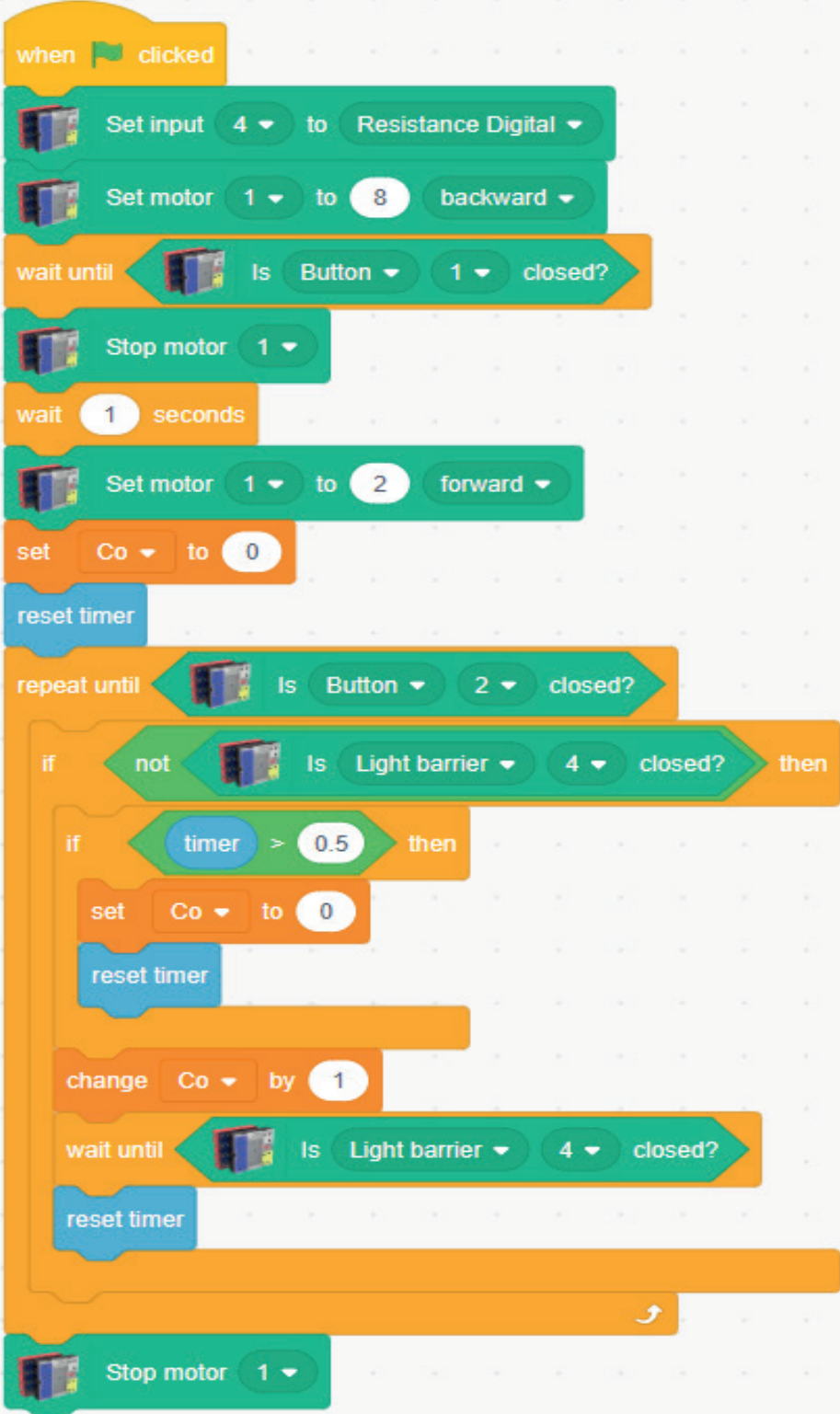


Recognize lines.sb3

Solutions and notes

Programming tasks Model 9: Barcode reader

Solution Read numerical code:



```

when clicked
  Set input 4 to Resistance Digital
  Set motor 1 to 8 backward
  wait until Is Button 1 closed?
  Stop motor 1
  wait 1 seconds
  Set motor 1 to 2 forward
  set Co to 0
  reset timer
  repeat until Is Button 2 closed?
    if not Is Light barrier 4 closed? then
      if timer > 0.5 then
        set Co to 0
        reset timer
      change Co by 1
      wait until Is Light barrier 4 closed?
      reset timer
  Stop motor 1
  
```

Read numerical code.sb3