Pedometer

HOW MANY STEPS DO YOU MAKE IN ONE DAY?

A pedometer is a device for measuring the number of steps. Today, it is often built into mobile phones that show how many steps a person has taken per day. The pedometer can be made on a micro:bit using the built-in motion sensor.

Material requirements: BBC micro:bit, USB cable, battery for micro:bit, computer with an access to Internet, paper adhesive tape (is easier to put down from clothes than classic tape), scissors, shoes
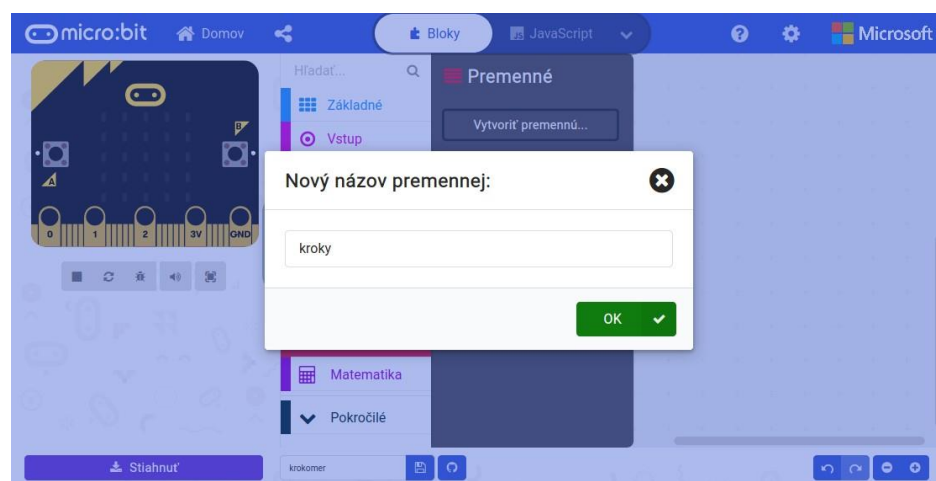
We are going to work in an online environment makecode.microbit.org.

PEDOMETER

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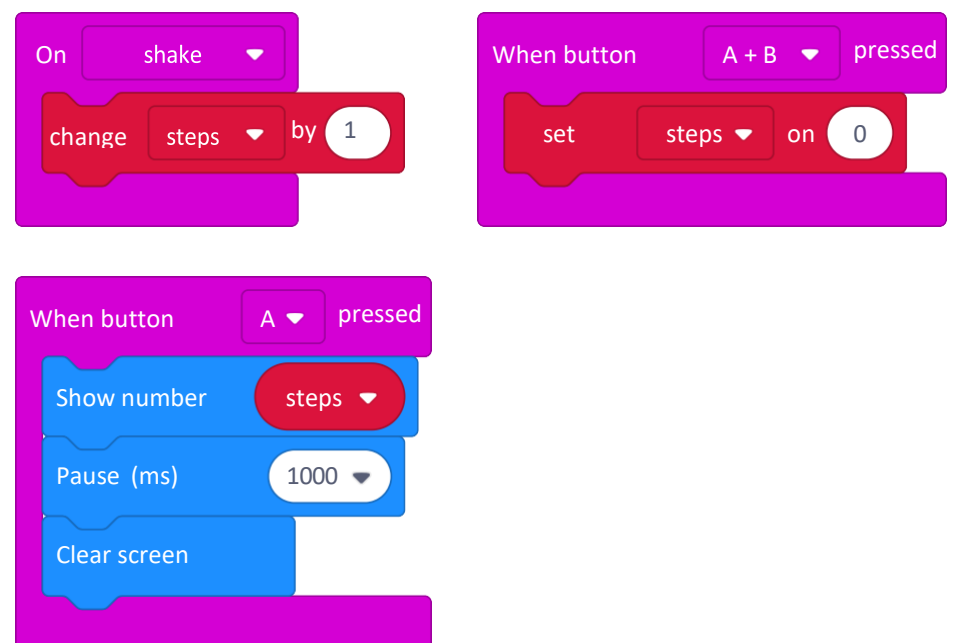

PEDOMETER PROGRAM

How to create a pedometer on a micro:bit? First we design the requirements (what the result should be), then we create a program and then we attach the micro:bit to the shoe and test it.

Kroky = steps

Edit and download: http://makecode.microbit.org/_JDkLUCh2i5gH

Micro:bit pedometer requirements:

- When shaking the micro:bit increases the variable step by 1.
- Reset the steps when pressing buttons A and B at the same time
- Show the number of steps on the display when the button is pressed.

To count the steps, we use a variable called steps, which we increase by 1 for each shake (step). We measure the step by shaking the micro:bit, as it will be physically attached to the shoe.

The number of steps will not always be displayed by the pedometer, but only when the A button is pressed. First, the number of steps will be displayed (use the command show number into which we will insert the variable steps). After one second, we will delete the number from the screen so that the not actual step number does not display all the time.

Sometimes we may want to clear the number of steps and start counting again from 0. This is always done by pressing both A and B buttons.

HOW MANY STEPS SHOULD I DO PER DAY?

How many steps should person do per day? There is no exact answer, but studies show that about 7 000 steps is enough (article). Researchers also claim that if a person make *"less than 5 000 steps a day, it increases the risk of weight gain, bone thinning and other problems...Scientists are also interested in the upper limit. However, according to studies so far, the more, the better and especially according to how much a person can handle. "*

HARDWARE FOR THE PEDOMOMER

If we have the program tested in the simulator and also physically on the micro:bit, we can disconnect it from the computer and connect it to the battery. Such a pedometer must be placed on the shoe – we recommend attaching the micro:bit to the front of the shoe on top (see the photo below). It has the best accuracy when positioned in this way. Of course, it can also be attached to the side of the shoe, but from our experience measurements are usually inaccurate. We glued the pedometer with paper adhesive tape, which goes down from the shoe more easily than classic tape and should not leave any marks.

Tools needed to create a pedometer

The result– a pedometer attached with paper tape

FINAL QUESTIONS

- What is the pedometer for?
- What sensor does it use to sense steps?
- How many steps should a person take each day?
- What threatens a person who does not move enough?