

Build a security robot

You will program a robot to surveil an area and take pictures of the people it detects.

Intelligent security systems are already used in countless places. The combination with intelligent robots that are mobile opens up new possibilities in many fields.

Note that several groups can take turns programming the same robot.

Task 1:

Construct the robot as shown in the image. Connect the USB camera to the computer. The other groups can test their program using the computer's integrated camera. The camera can be selected under "settings" and "camera source" in the interface.



Task 2:

Program the robot to scan part of the room it is placed in: quietly, smoothly, and periodically.

If the robot detects a movement that could be a person, it must take a single picture. Pictures should be stored automatically in a folder on the computer's desktop.

Program the robot to sound an alarm when a person is detected.

Task 3:

Experiment with the program and the robot - try to make it more user-friendly by making it easier to use and better at detecting people.

For example, you can use the space bar on the computer as an on/off button for the robot. You can also combine detection of movement with detection of sound using the computer's microphone in order to make the robot even better at discovering people.