

# Ambulance

Deadline: 13.6.2021

Points: 25

Material requirements: PC or Laptop (no Tablet) with Browser (no Safari)



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## Topic description

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This time the robot is used as an ambulance. Your task is to pick up an injured patient from the accident site and bring him to the hospital as quickly as possible.

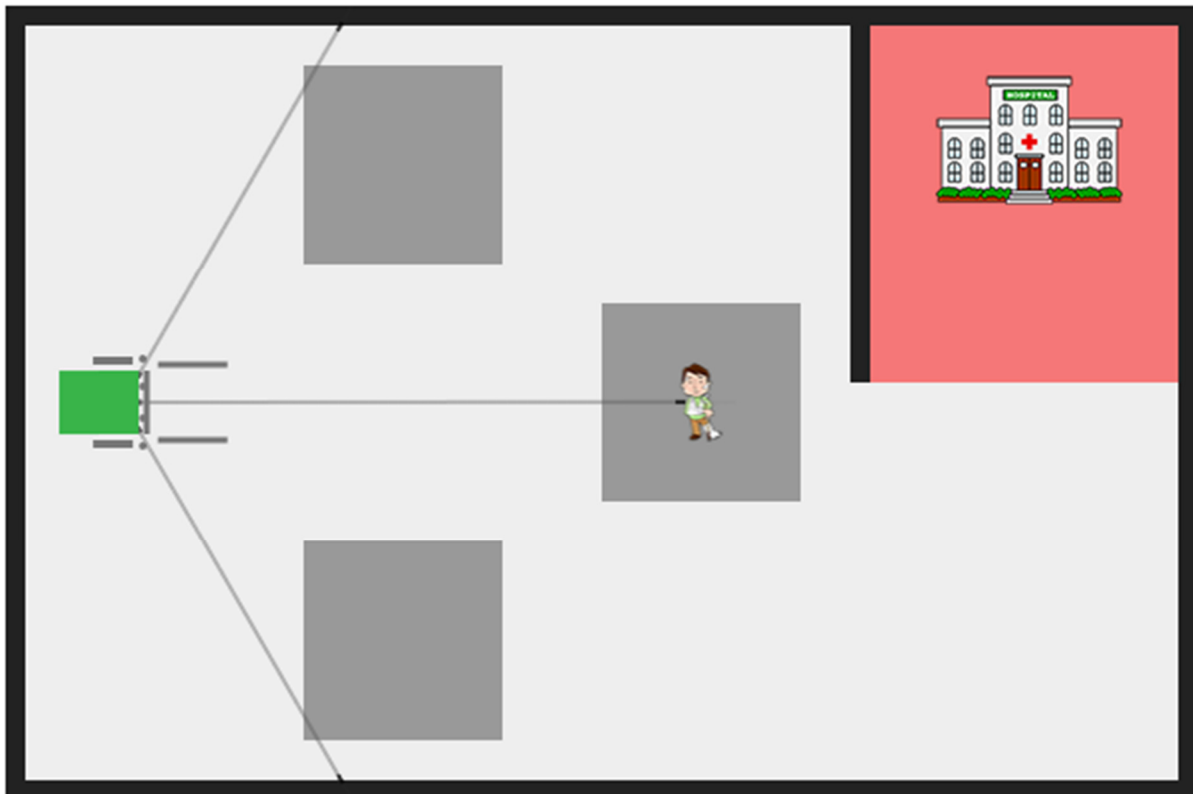
We wish you a lot of fun with this and the following tasks!

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## Task description

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Visit our online simulation environment again ([ide.pria.at](http://ide.pria.at)) and create a new project with the "Ambulance" task as a base. Open your project and the simulation task should look like this.





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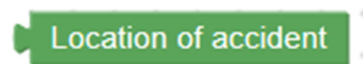
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The patient will be randomly placed at one of the three accident locations each time you start your program. The robot must pick him up from there by enclosing him with its gripper arm and then bring him to the red area around the hospital.

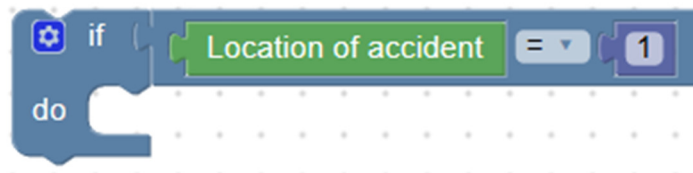
### Get accident location

In "Custom" you will find the block "Location of accident", if you call this block, the accident location of the patient will be returned as a number between 1 and 3.

1. Top accident site
2. middle accident location
3. Bottom accident location

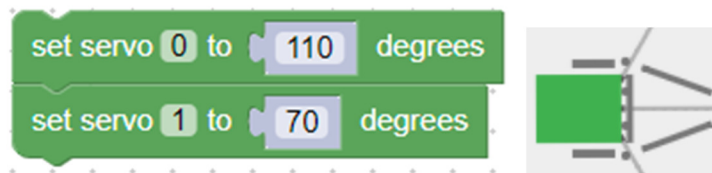


So you can use this block e.g. in decision blocks:



### How to use the Gripper

The robot has a grappling arm mounted at the front, which can be controlled with two servos. Servo 0 moves the left arm, servo 1 the right. The position of the servo is specified in degrees, where the neutral position that the gripper has at the beginning corresponds to 90 degrees. If you decrease the position, the servo arm moves counterclockwise, if you increase it, it moves clockwise. Here is an example of how to close the gripper and what the robot will look like:



The blocks for controlling the servos can be found under "Servos".

### Sensors

The robot also has the following sensors:

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- Sensor 4: left distance sensor (about 45 degrees to the left front) - Analog
- Sensor 5: center distance sensor (straight forward) - Analog
- Sensor 6: right distance sensor (about 45 degrees to the right front) - Analog
- Sensor 8: front touch sensor (at the front of the robot) - Digital

Analog sensors can be polled with the "Sensors" -> "Value from analog sensor" block and used as input for loops or decision blocks.

Analog sensors can be queried with the block "Sensors" -> "Value of digital sensor" and used as input for loops or decision blocks.

For more details about the use of sensors please have a look at the task "Labyrinth".

## Submission

Please submit your Blockly program and a screen video of a successful run.

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### *Evaluation criteria*

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- Robot takes patient to hospital
- Screen video and Blockly program file submitted
- Jury evaluation: The jury evaluates the quality and creativity of the submission.

