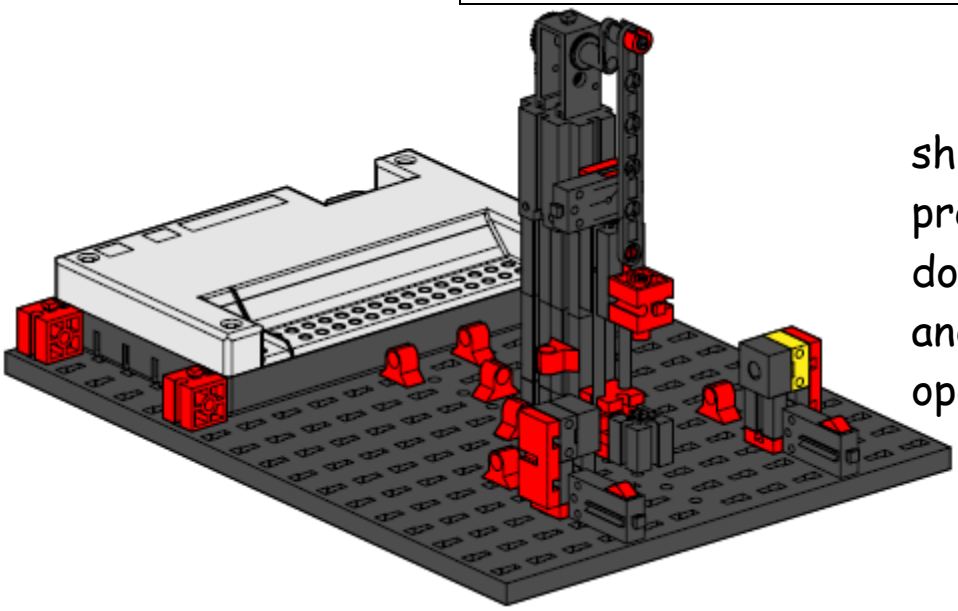
Robotics

Science 8

Model 6: The Stamping Press



Build and program a sheet metal stamping press machine using a double startup switch and a light beam for safe operation.

Assemble the model:

Step 1: Build the Stamping Press Model as shown in these assembly instructions.

Step 2: Wire three pushbutton switches and one phototransistor to the digital inputs I1 – I8 on the interface.

Step 3: Wire the 1 light and 1 motor to the outputs M1 – M4 on the interface.

Programming Tasks:

Task 1: Program the stamping press so that it moves to the top of its stroke when the program is started. When both buttons are pressed the machine should operate for 4 strokes and stop until the buttons are pressed again.

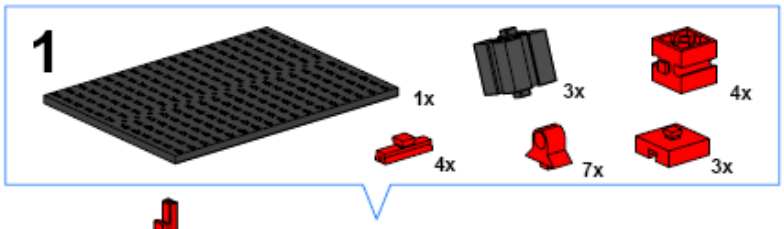
Task 2: Modify the program in task 1 so that the machine will not operate if the light barrier is broken. If the barrier is broken while the machine is running the machine should stop. Programming Tips: A pulse counter or loop counter element could be useful.

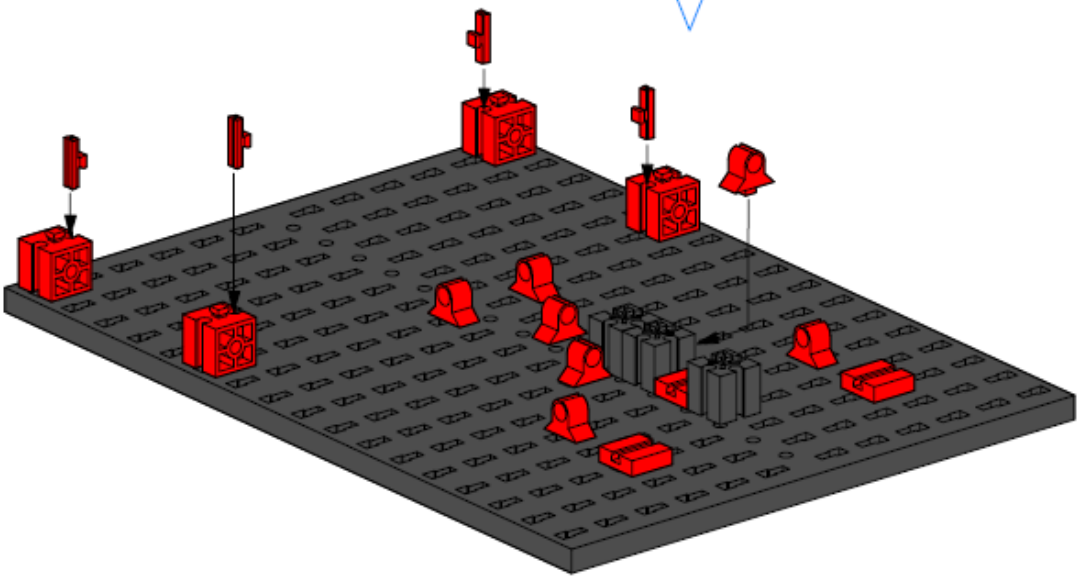
Bonus Task: Expand the program so that you can set the number of strokes for one working cycle with a slider control and can also display the number of parts produced.

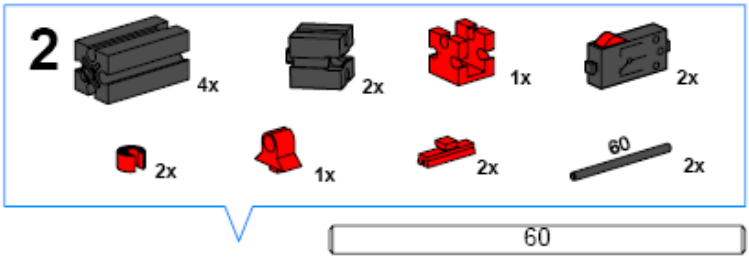
Note; this task requires advanced programming techniques.

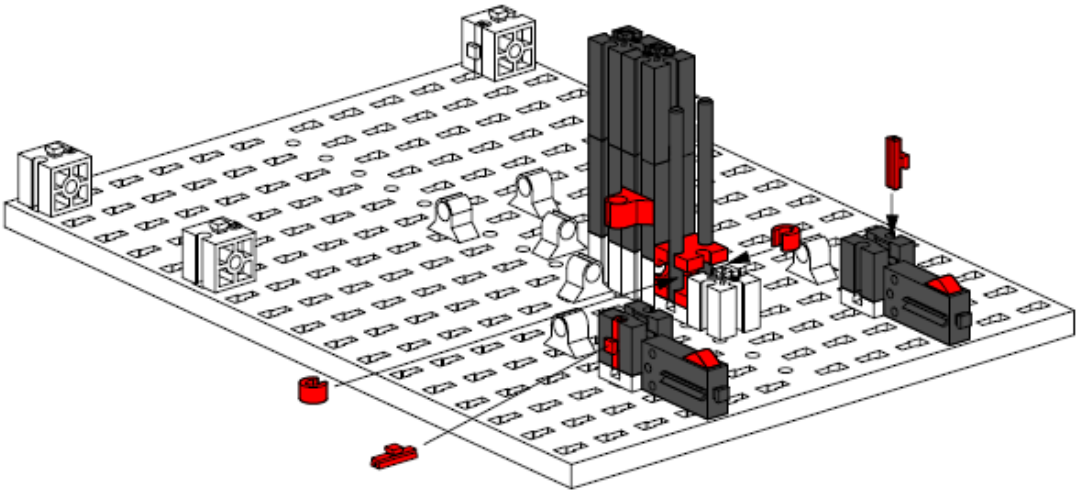
Model 6 – The Stamping Press

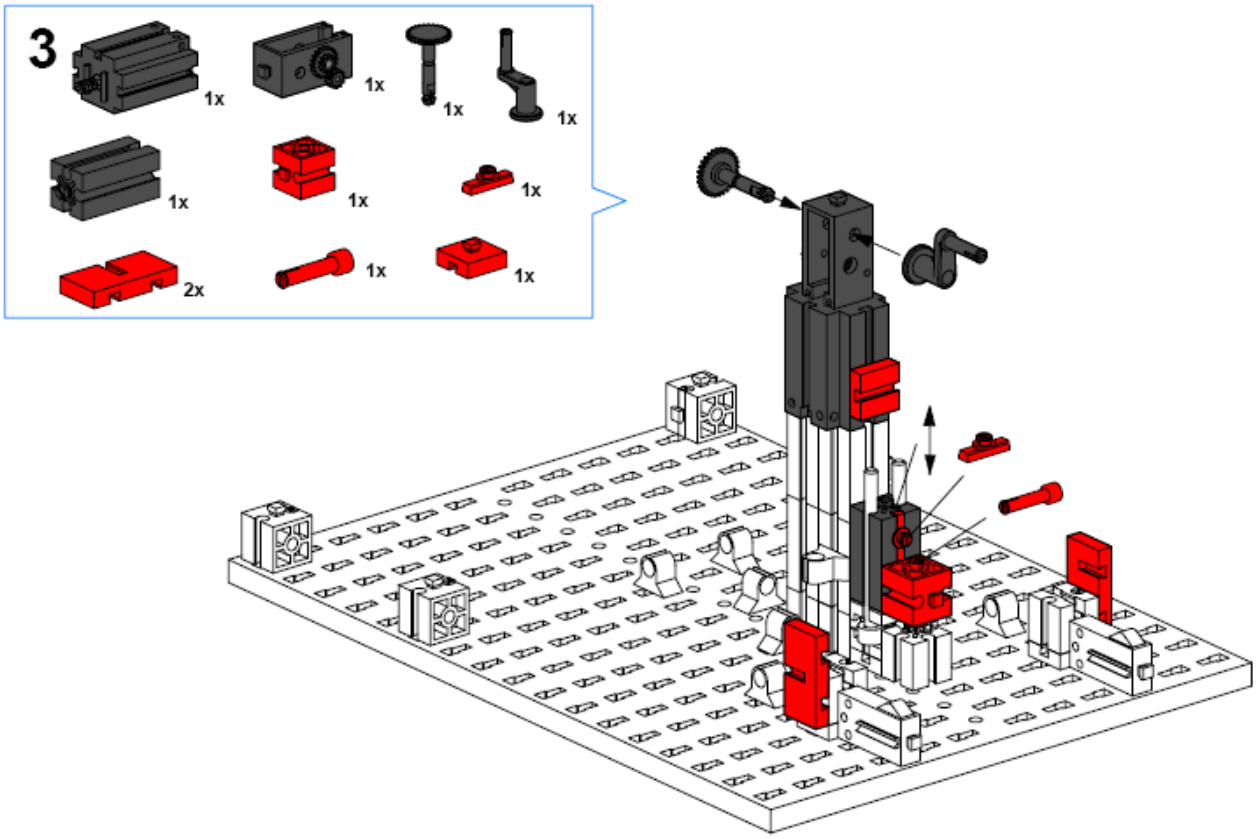
Assembly Instructions
Page 1

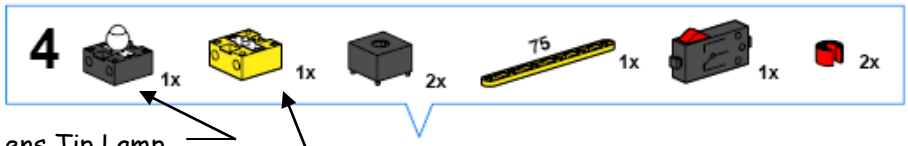






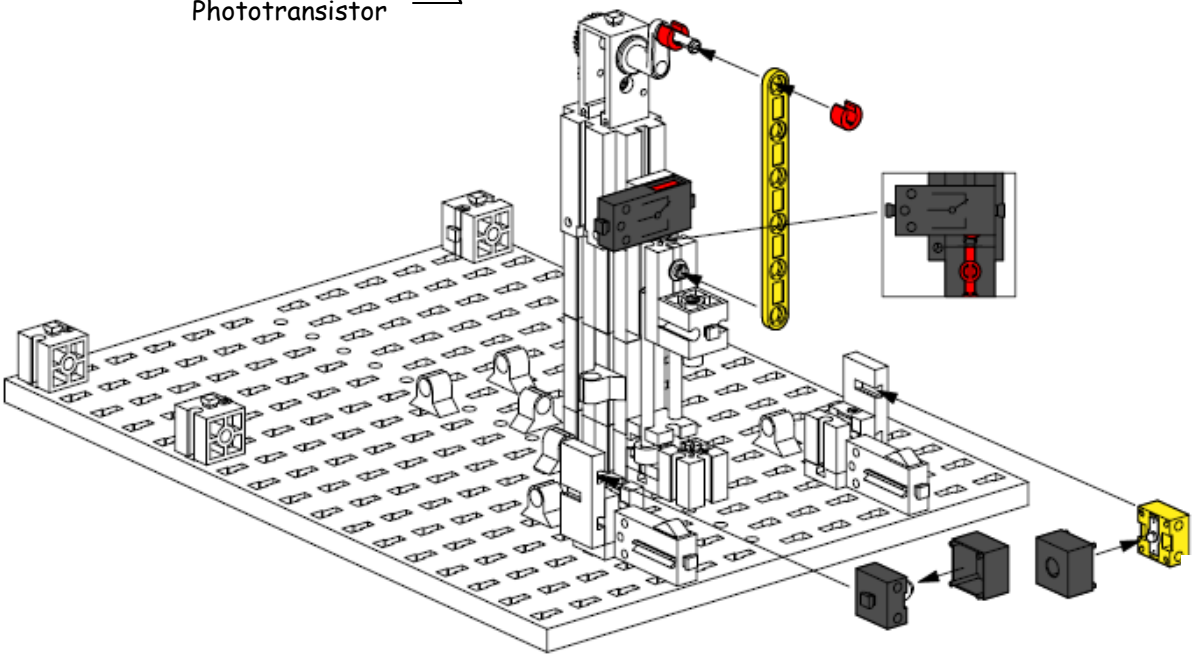


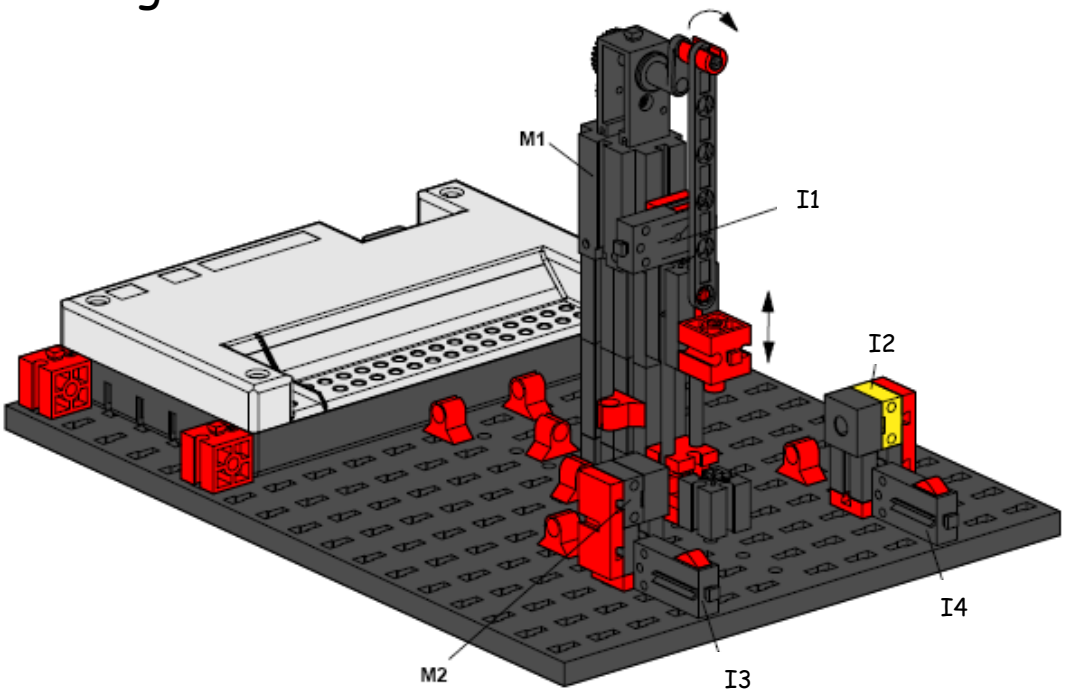




Lens Tip Lamp

Phototransistor





Wiring Diagram

Note: our interface looks a little different from this picture.