

Design and Development of a Colour Sensing Based Objects Sorting



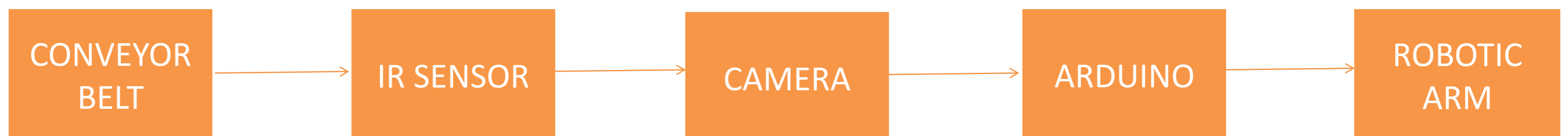
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Abstract

The objective of this project is to design a robotic system that recognize the color of objects, that are moving on conveyor, and put it down to the right place according to their color. The project mainly consists of three parts: conveyor belt, robot arm and image processing. In our designed system, Arduino Uno R3 is used as a controller which provides communication of the system with a camera module and movement of the robotic arm.

Block Diagram

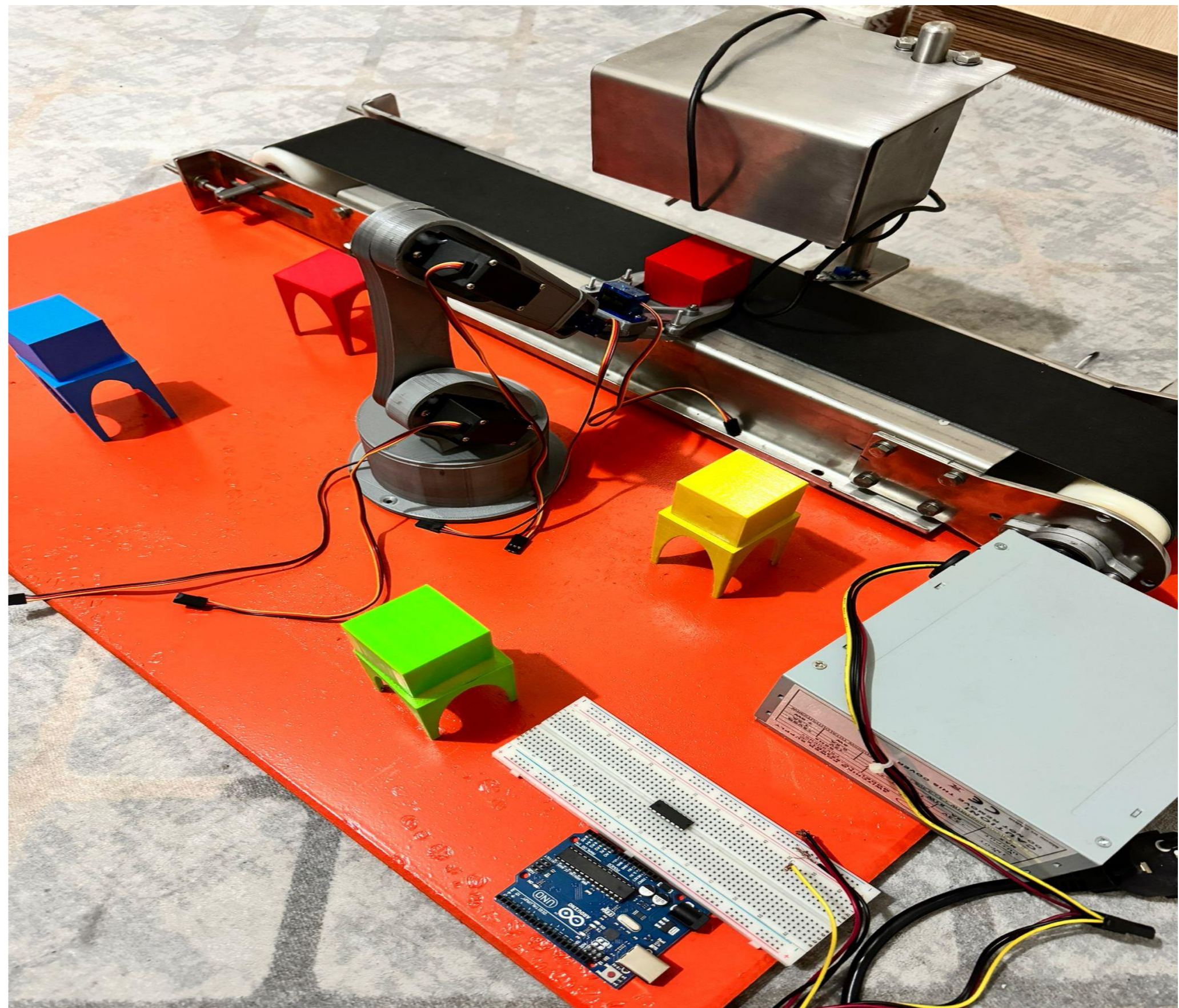


Main Components

Arduino Uno R3, SG90 RC Mini Servo Motor, MG996R Servo Motor, 12V (37 rpm) Geared DC Motor, L293D Motor Driver, Roller, Pvc Tape, IR Sensor, Power Supply

Main Board and Robot Arm

The reflector senses the object coming from the conveyor belt and stops the belt, the camera is turned on to detect the color and shape of the object. Then the color and shape information are transmitted to the robot arm, allowing the object to be placed on the appropriate stand, and after the robot arm completes the operation, the belt restarts again.



Conclusion

This system, which has color and shape detection technology, is designed especially for production in factories in a short time. Thanks to this robotic arm and camera, cubes of appropriate shape and color will be placed on appropriate stands and a rapid process will be carried out.

References

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