

Programming LEGO robots with BlueJ

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Computing

Why use BlueJ with LEGO? (and vice versa!)

- Robotic models are motivational.
- Models can help to realise objects.
- BlueJ is a familiar, comfortable environment.
- I do have some reservations:
 - “Teaching introductory programming through LEGO MINDSTORMS models”, David J. Barnes, SIGCSE 2002.

Two distinct approaches

- Using BlueJ as a development environment for autonomous models.
 - Such models would be programmed in Java.
- Using NXT models to enhance normal BlueJ instructional projects.
 - Model behaviour is controlled from BlueJ.
 - No programming required on the model.

Autonomous models

- BlueJ extension by David Bowes, University of Hertfordshire:
www.bluej.org/extensions/extensions.html
- The leJOS library classes:
lejos.sourceforge.net
- NXJ firmware on the brick.
- There may be stylistic issues you would like to avoid – use of static references.

Project-enhancing models

- No plug-in required for these.
- The *icommand* libraries offer direct communication with the NXT.
- No special firmware on the brick.
- Potentially usable with Greenfoot.
- The story of the TicketMachine project ...
 - Missing was a real-world effect.

Inspiration for the missing piece



A candy-machine BlueJ project linked to the Candy Coated Catapult model.

Instead of printing tickets, a candy is delivered.

Summary

- LEGO models have the potential to add interest and elements of the real-world.
- BlueJ easily supports use of the leJOS libraries for the Mindstorms NXT.
- Both autonomous models and project enhancements are possible and have their place.