Explosion imminent. Evacuate the facility immediately.
Warning. Reactor core is at critical temperature.
Warning: Energy cube system overheating. Nuclear meltdown imminent.
Warning: Energy cube system corruption at 50 percent.
Warning: Energy cube system corruption at 75 percent.
Warning: Energy cube system corruption at 100 percent.
Neurotoxin level at capacity in five minutes.
Vent system compromised: Neurotoxin offline.
Reactor explosion in four minutes.
Reactor Explosion Timer destroyed.
Reactor Explosion Uncertainty Emergency Preemption Protocol
This facility will self destruct in two minutes.
Manual core replacement required.
Please prepare for emergency evacuation.
Warning: Central core is eighty percent corrupt.[1]

Welcome to Student Robotics. We hope you are feeling well. We're sorry, but your spaceship was in an accident. You are locked in Engineering. There was an explosion in the Energy Cube System. There is little energy left. The atmosphere control has restricted the Oxygen supply to Engineering.

It's a good thing you have your Student Robotics Kit with you!

1. KickStarted

Try your Kit - has it survived the crash?

Make your Student Robotics Kit print a call for help on the big screen on the Power Board! When you're done, ask the main computer of the ship (i.e. a Blueshirt) if your analysis is correct.

Hints:

Student Robotics IDE
Kit documentation
Token Ring
Programming tutorial

Well, that's good news! At least something is working. Maybe you can use it to call for help!

2. Blinkenlights

Send a light signal with your Student Robotics Kit and an LED, by attaching the LED to the appropriate electronics board and writing a short program. Check with the main computer when you're done.

Hints:

LED tutorial
Check out this electronics board

Confused? You want to use a resistor? (look for the I/O Pin Protection)

Let's hope someone detects your tiny point of light. But maybe the Student Robotics Kit can be even more helpful. A very important questions needs answering: What about food?! The vending machine is out of order. Maybe you can fix it with the Student Robotics Kit.

3. Servo'd

Ask the main computer to locate the nearest vending machine.

See if you can get the food selection wheel to turn by using your Student Robotics Kit. Select something to eat and something to drink, and see how the main computer reacts.

Hints:

What's a servo?
SR Servo Board
SR Servo API

4. Making a Mark

You notice that your Robot Kit needs food, too - The charging device is next door. You need an entry code but don't have a decoder with you. Luckily, your Robot Kit might be capable of decrypting those black and white codes.

Write some code that uses the camera to read the ID of Libkoki Markers.

SR Vision

5. Always be charging

Now it's time to charge your Student Robotics Kit. Unfortunately, the main computer forgot all your ship's security checks. It wants to verify the ship's safety by itself - so try to agree on how to charge the kit!

Show the main computer that you know how to charge your batteries.

SR batteries

6. Masterplan

Luckily, there are still some cameras working. After a quick look at the video from the machine room, you see a major problem: the explosion has yanked all the emergency energy cubes out of their slots! Without them you won't have any chance to get the spaceship running again. No chance of reaching a safe space station. But the machine room is oxygen-free and additionally contaminated. There is only one way to survive: you have to construct an autonomous robot that will put the cubes back into their slots. But be careful! Not all cubes are compatible to each other. Some of them were destroyed by the explosion. You won't be able to start if there are too many wrong cubes in the slots. You can identify the boxes by the markers on their sides.

Unfortunately, the machine room's maintenance robots have had their programs corrupted, and will put the wrong cubes into the slots! You have to be faster and better than them!

Before you send your valuable Student Robotics Kit into the machine room, you should think about what you're doing.

Have a look at the yellow and red pieces in the envelope you received. Use them to create a flowchart that shows the robot's tasks.

Well, with this figured out you have the basic tools together for building a robot! Thinking about what you want the robot to do is one thing. We recommend you start building and testing your ideas very soon as well!

7. (Bonus) "We sing, we dance, we move things"

Compose a small song and teach it to the Student Robotics Power Board, so you don't feel so alone and lonely on your broken down spaceship!

Hints:

Beeping