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| **Rose-Hulman Institute of Technology** |
| **Arkin Final Report – Localization and Search** |
| **ECE425-Mobile Robotics** |
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# ABSTRACT

The purpose of this final project is to demonstrate the integration of some of concepts learned in this quarter by creating localization and search algorithms for the CEENBoT platform. The localization task involves using sensor feedback with a navigation routine to determine the location of a lost robot in the world, the location of a fire (heat) source, and then rescue it by moving it to its home location. The CEENBoT robot uses a total of four IR range sensors, with a single IR sensor attached to a side of the robot, for detecting walls and/or close proximity obstacles. The robot uses these sensors to map the world, localize itself, and verify that it has entered or left a cell in the world. Located in the front of the robot, the CEENBoT also uses a heat sensor to detect heat sources and move towards or away from them.

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