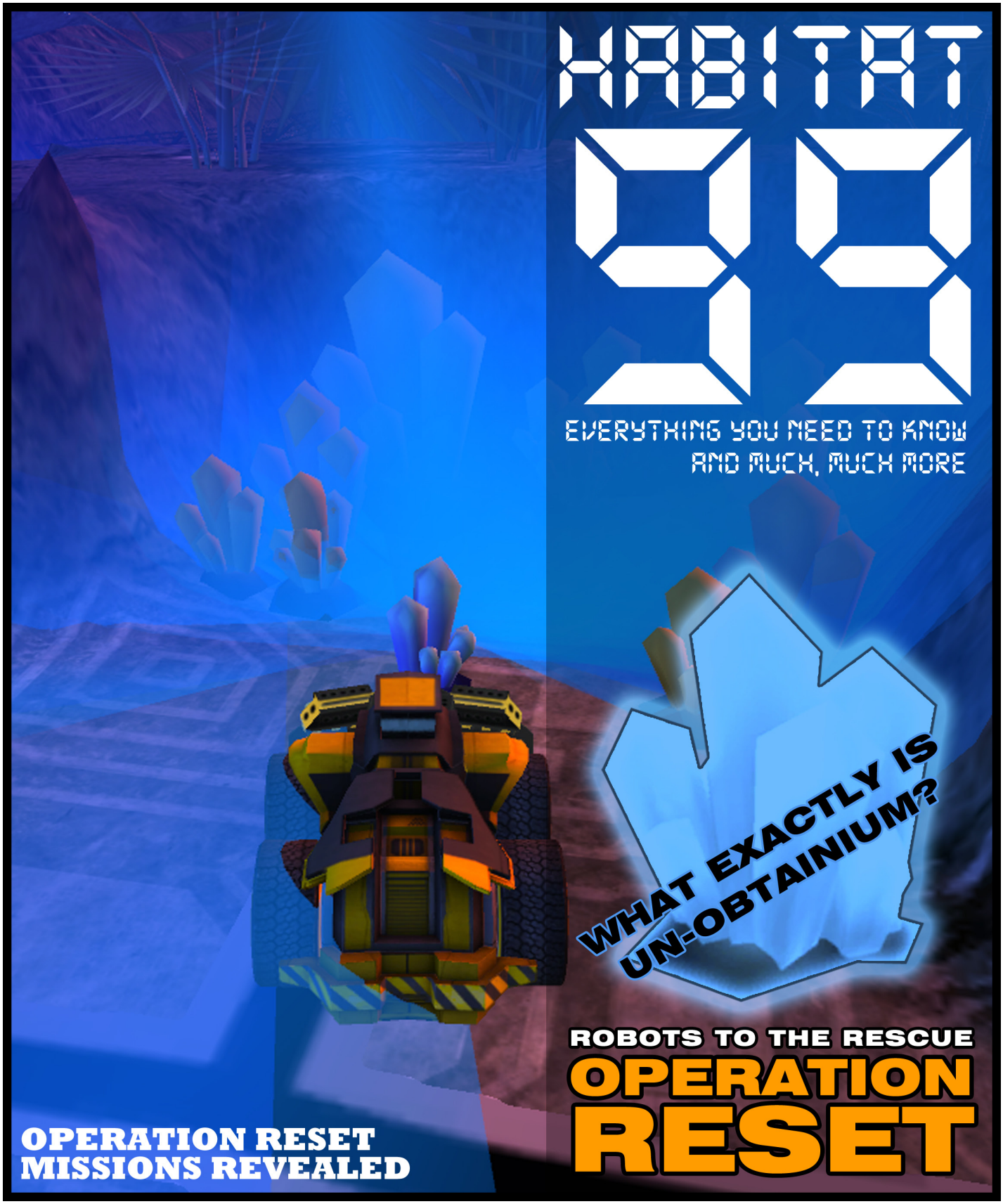
ROBOTICS TODAY

THE LATEST IN SCIENCE, RESEARCH AND CONSUMER ROBOTICS

NOVEMBER 2012



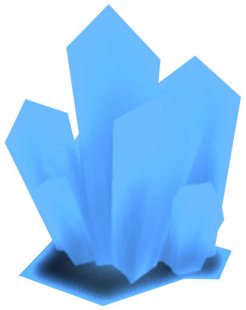
DEVELOPED BY: CARNEGIE MELLON ROBOTICS ACADEMY

DEEP SPACE HABITAT 99

Operation Reset!

The Deep Space Research Administration (DSRA) has tasked several programmers to reset Alpha Base H99, a robotic crystal mining colony near the galactic center of the Milky Way. A series of violent storms knocked out all systems in the colony; it has been abandoned for the last two months.

Alpha Base H99 is rich in Unobtainium crystals, some of the cleanest fuel sources ever found. The storms stopped the Unobtainium mining process and it is critical that Earth continues to receive shipments of the crystals.



UNOBTAINIUM CRYSTAL

The DSRA has stated that the only way to send more crystal shipments from Alpha Base H99 is by making the colony fully operational again.

Programmers are assigned to recharge all of the Communication Towers in the colony. This is done using the Charge Cubes that are spread around H99. Once Communication Towers are at full strength you will be able to directly control the mining robots using keyboard control capabilities.

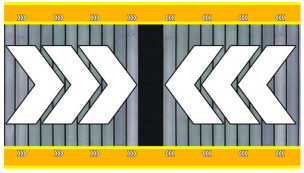
CHARGE CUBE
CHARGE PAD

Refueling the rocket is critical. As you encounter the blue Ion Propulsion Fuel Barrels, you should collect them using the state-of-the-art gripper on your robot. You will learn more about controlling the Gripper during the mission.

Deliver the Fuel Barrels you collect to one of the three Fuel Discharging pads. When Fuel Barrels are set on the Discharging Pads, the fuel will be transported to the rocket. Five Barrels are required to refuel the rocket; the robot can carry one at a time.

FUEL BARREL
FUEL PAD

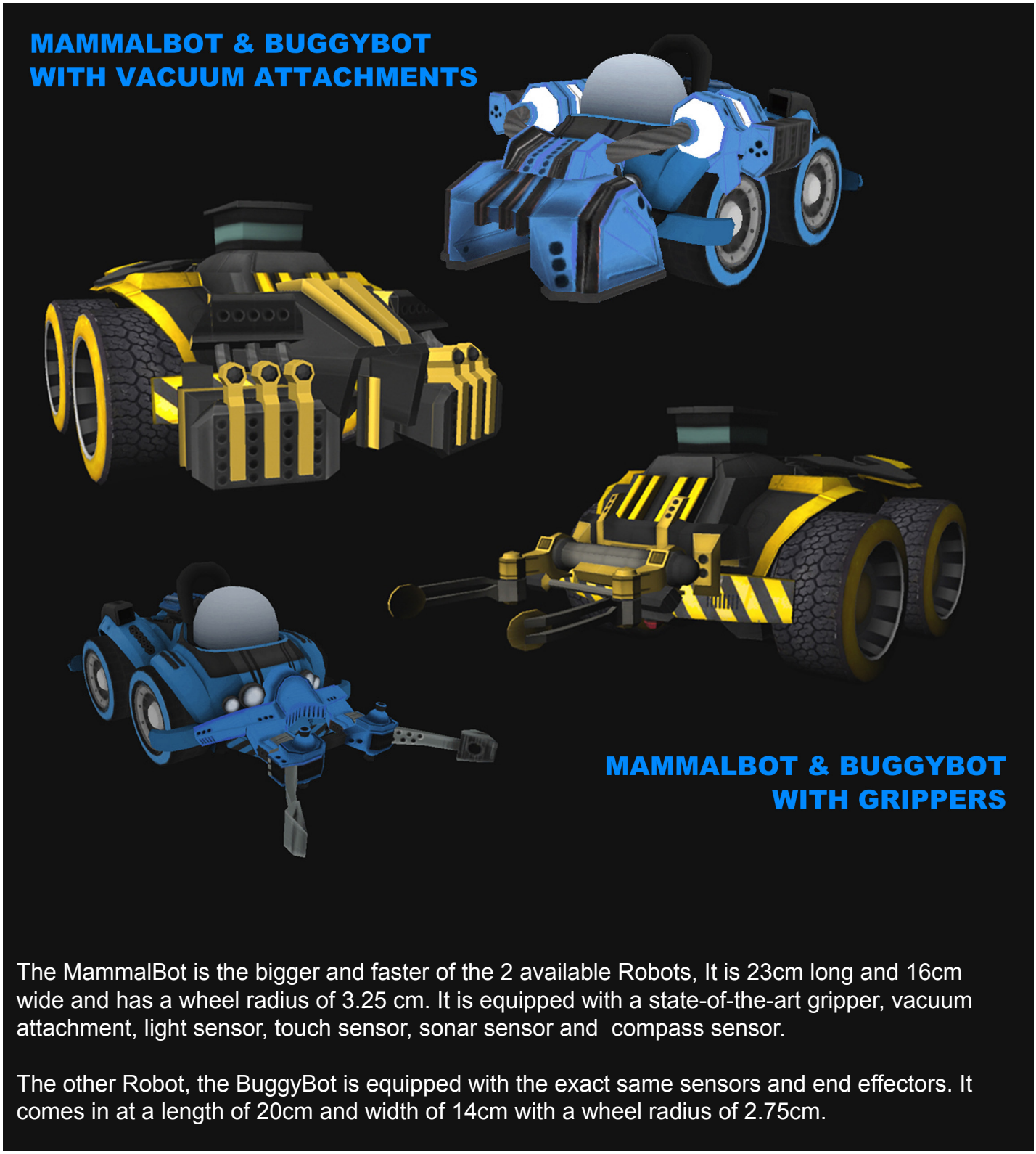
Unobtanium crystals are a powerful and clean energy source that has replaced fossil fuels. Mining colonies are set up across the planet H99.The DSRA has identified two clusters of crystals that are fully developed. Find the them and use the Vacuum Attachment on the robot to absorb their particles. Once you've absorbed the crystals, deliver them to the Crystal Pad near the rocket.



BOOST PAD

Boost Pads are specially designed to help you program the robot to move quickly and accurately from one side of the colony to the other. The design is implemented to give programmers a large margin of error to access the Boost Pad. The Boost Pad will always place your robot at the exact same landing spot and heading when it is ejected.

OPERATION RESET MINING ROBOTS



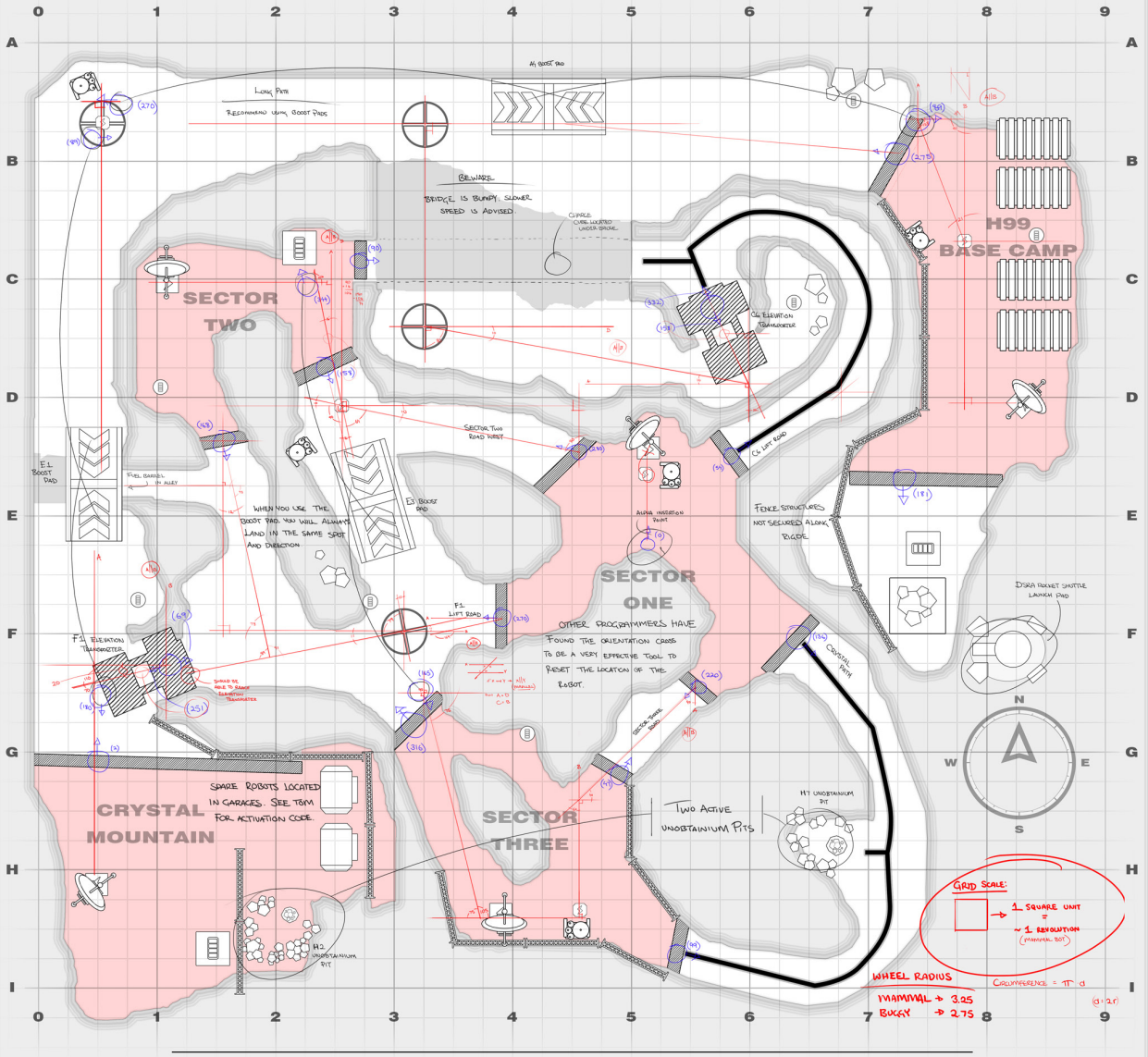
The MammalBot is the bigger and faster of the 2 available Robots, It is 23cm long and 16cm wide and has a wheel radius of 3.25 cm. It is equipped with a state-of-the-art gripper, vacuum attachment, light sensor, touch sensor, sonar sensor and compass sensor.

The other Robot, the BuggyBot is equipped with the exact same sensors and end effectors. It comes in at a length of 20cm and width of 14cm with a wheel radius of 2.75cm.

DETAILED GAME MAP

The DSRA provided this map detailing the locations of Alpha Base H99. The legend at the bottom shows all of the different structures, collectibles and zones in the world.

A High Resolution map can be found within the software and also on the Robot Virtual Worlds website: www.robotvirtualworlds.com



LEGEND

STRUCTURES

- CRYSTALS
- GARAGE
- CHARGER
- ELEVATION TRANSPORTER
- ROCKET LAUNCHPAD
- CHARGE PAD
- COMMUNICATION TOWER
- QUONSET HUT
- ORIENTATION CROSS
- BOOST PAD
- FUEL PAD
- CRYSTAL PAD

PICKUPS

- FUEL BARREL
- CHARGE CUBE
- UNOBTAINIUM CRYSTAL

ZONES

- PROGRAM ONLY
- REMOTE CONTROL
- INSERTION POINTS
- INACCESSIBLE

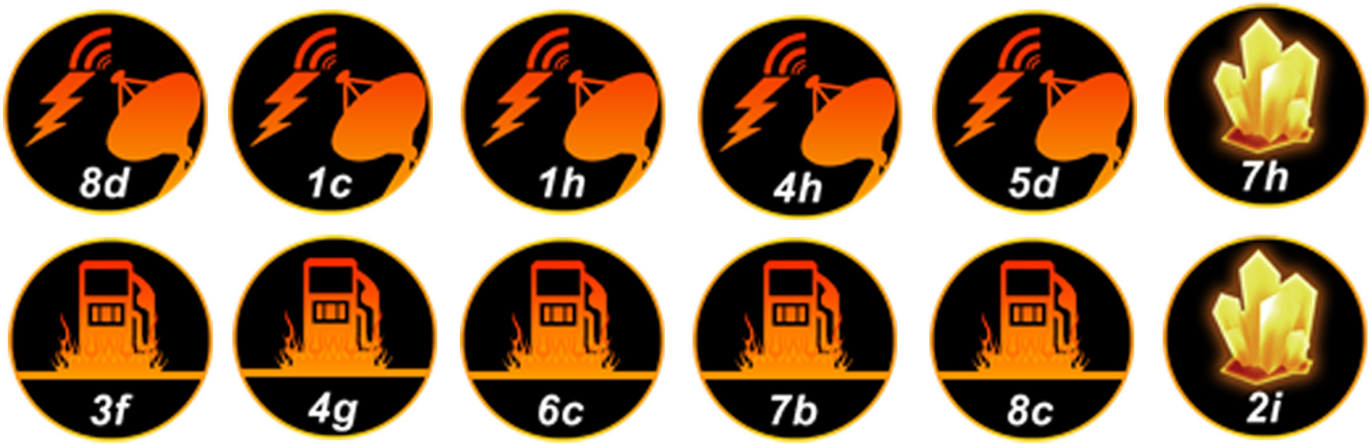
REMOTE CONTROL ZONES

BADGES

The DSRA will award your accomplishments on Apha Base H99 with badges. A badge is a symbol or indicator of an accomplishment, skill, quality or interest. Badges can be used to represent achievements, communicate successes, set goals, and motivate behaviors. They can support learning that happens in new ways and new spaces beyond the traditional classroom.

To keep track of your badges, create an account on www.cs2n.org. Use your account to log in from the Main Menu of the Operation Reset software.

Operation Reset has 3 different Badge Sets:
Motivation Badges: You achieve these when ever a Communication tower is Charged, a Fuel Barrel is delivered or an Unobtainium Crystal is dropped off.



Progress Badges: These are awarded when every Communication Tower is charged, 5 Fuel Barrels are delievered, and when both Unobtainium Crystals have been dropped off at the Crystal Pad.

Mastery Badge: This is the final badge awarded in Operation Reset. It is awarded when all of the above badges have been earned and when the rocket successfully leaves Planet H99.

For more information on badges visit - www.cs2n.org/teachers/badges

OTHER SIMULATION WORLDS

Make sure to check out some of the previous simulation software releases from Carnegie Mellon Robotics Academy at www.robotc.net

THE RUINS OF ATLANTIS

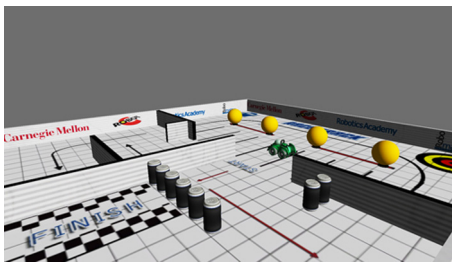
We thought Atlantis was a myth. We were wrong. With the emergence of new robotics technologies we are now able to explore areas of the world we've never seen before According to legend, Atlantis was a center of trade and commerce in Eurasia thousands of years ago. Your mission is to explore the Ruins of Atlantis, 6,000 meters below the surface of the ocean, collecting data and treasures.

CURRICULUM COMPANION

The curriculum companion pack includes the challenges that are in the ROBOTC curriculum. Now you can practice your ROBOTC code alongside the curriculum without the need for hardware!

LEVEL BUILDER

Configure your own levels out of a wide selection of classroom-themed assets: balls, cylinders, boxes, walls, line tracking tiles, and more. Challenge yourself, or share your levels with students, classmates, or teammates. It's a free download for all ROBOTC for RVW users.



IMPORTANT ROBOTICS LINKS

www.cs2n.org
www.robotc.net
www.education.rec.ri.cmu.edu
www.robomatter.com
www.robotvirtualworlds.com
customerservice@robomatter.com