MindRover:
The Europa Project

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Introduction

MindRover: The Europa Project

Welcome to Europa, land of ice and more ice. With Jupiter constantly hovering on the horizon, we've found that homesickness among new arrivals is common, so let's just get started.

Your time here will present you with a new type of challenge -- one that matches the excitement of an action game, the planning of a strategy game and the intense thinking required in a puzzle game.

Your goal is to create robotic vehicles using a wide array of different components, program their behavior, then set them free to compete with each other. Your progress through the levels will depend on cleverness, innovation, and even deception as you tackle some of the more challenging scenarios. Share your successes, get advice, download new challenges and compete with others by visiting the MindRover website at **www.mindrover.com**.

MindRover probably isn't quite like anything you've seen before, so please give yourself a chance to learn it. Go through the in game tutorials and use the F1 key for help along the way.

Ready? Free your mind, grab your mouse, and enter into the world of MindRover!

Quick Start

For the fastest introduction to MindRover, follow these steps:

Create a new user name and log in. Your user name will be used to help identify the vehicles you build.

Go through the first 2 or 3 tutorials in the game following the tutorial prompts.

Click on Sports category, and try ***Sumo Hover***. There is a tutorial vehicle (half-built) available to get you started or you can start with an empty chassis.

After that you should have a pretty good idea of how to go off and build your own rovers.

Don't forget to visit *www.mindrover.com* for hints, tips, and competitors. You'll find an active and growing MindRover community.

Chapter 1

Using This Manual

Concepts

The Concepts section describes essential MindRover concepts in some detail. You will learn about scenarios, vehicles, components, wiring, and competitions. You can read this chapter before you play to get a good feel for all aspects of the game. But if you like to jump right in and get started, just go to the first tutorial and come back to this chapter later.

Console

The Console section goes into detail on each of the user interface screens. You can read it before you start, or just use it as a reference after you have started playing the game.

Components

This chapter gives you specific information on each component in the game, listed alphabetically. Within the game, click on a component and press F1 to get more details and examples.

Start with the tutorials

You'll probably have the most success if you go through at least the first two tutorials before going on to other categories. The tutorial prompts come up automatically when you choose a tutorial scenario.

There are five tutorials in all. It's not necessary to do them all at once; go through the first two or three, then try some of the level one challenges. The last two tutorials handle more advanced concepts, so wait until you are comfortable with the interface and with creating vehicles before tackling them.

Chapter 2
Concepts

Overview

When you play MindRover, you are given a series of *scenarios* or challenges. Your job is to program a robotic vehicle to solve them. There is no single solution to each problem; MindRover lets you devise your own personal way of getting through a level.

This chapter will provide the basic concepts for playing MindRover. The next chapter, Console, goes into detail on how to use the interface.

Some scenarios may ask you to build a vehicle to complete a series of simple tasks. Others might ask you to program a set of vehicles that work together to defeat another team.

You can equip your vehicles with everything from rocket launchers to radars to speakers. You can program them to do anything from following a track, to finding a path through a maze, to seeking and destroying other vehicles. The behaviors you can create are limitless -- and the game will grow with your abilities.

There are five basic steps in playing MindRover.

Chapter 2

Choose a Scenario

First, choose a scenario or challenge. Each one has a different task or competition, and MindRover supports several different styles of scenario.

Choose a Vehicle

Next, you choose a chassis on which you will place the components for your vehicle. There are wheeled, treaded and hovercraft type chassis in varying sizes.

Add Components

Next you load up your vehicle with the components you feel are necessary to solve the scenario. You can choose from over 50 different components, from weapons to random number generators.

Wire it up

You then program the components by wiring up all the components, describing how the various parts work together.

Go!

Finally, you cross your fingers and put your vehicle to the test by running the scenario. Your rover runs on its own, with no further intervention from you.

Of course, you probably won't get it right the first time. So return to the console, tune it, and try again!

Scenarios

A *scenario* is a challenge or competition with a goal, such as "push your opponent off the wrestling mat." Each scenario has particular rules that you must follow in order to win.

*Start in the **Tutorials** category*

If this is your first time using MindRover, you should go to the ***Tutorial*** category first and choose ***Tutorial: MindRover Basics***. After the first few tutorials you should try a level one scenario in another category.

After selecting a new category and a scenario, read its description in the property box to the right. The ***F1*** key brings up in-game help. If you have just selected a scenario, it will give you detailed information about the challenge you've selected.

Choosing a Scenario

Scenarios are organized into five categories: ***Battles***, ***Miscellaneous***, ***Sports***, ***Races***, and ***Tutorials***. Within each category, there are several levels of difficulty, and each level contains one or more scenarios.

To see the list of scenarios in a category, click on the category name on the top line of the screen. Select a scenario within a category by clicking on its name. The preview screen in the lower right hand corner will show a flyby of the scenario. The property box on the right gives a description.

Completed Scenarios

After you complete a scenario, the scenario is "checked off" on the screen. This is a visual indicator of the scenarios you've completed so far.

Chapter 2

You can play any scenario in any order, but you'll probably do best if you complete scenarios within a category in the order they're presented.

Vehicles

All vehicles in MindRover are based on one of three types: hovercraft, wheeled, or treaded. There are three sizes of each. The smaller sizes are lighter and take less power to accelerate, but are more easily pushed around. Larger chassis, on the other hand, are heavier and contain many more attach points for mounting components. However, they also take longer to accelerate and require a higher engine throttle setting to move them.

Once you have chosen a scenario and entered the vehicle selection screen, both empty chassis and pre-made vehicles will generally be available for the competition. The scenario may restrict the use of certain chassis types or components. In this case any vehicles using forbidden components will **not** be available for use in the scenario.

For many scenarios there may be 2 or 3 opponent vehicles to choose from. Some of the lower-level scenarios have tutorial vehicles to help you get started. Chapter 3, Console, has more details.

A vehicle is stored in the holobox row where it was last used.

Your vehicle is automatically saved whenever you run a competition or log out of the game. You will find it under the row label of the scenario type in which you created it or most recently modified it.

For instance, if you created a vehicle while in a ***Battle*** scenario, then it will be listed in the row labeled "Battle." You can still use it in a ***Race*** or ***Sports*** scenario as long as its chassis and components are legal.

Your opponents are on the red team (team 2). Your vehicles are on the blue team (team 1). Some scenarios compete one vehicle against one opponent. Others compete two on two or one vehicle against the clock.

To get credit for beating the scenario, you must beat one of the opponents supplied by CogniToy. You can, if you wish, use a different opponent altogether. Please see the section below on how to compete with your friends.

Vehicle Types

Hovercraft

A Hovercraft is a light vehicle that floats on a cushion of air. It has very little friction and can slide freely in any direction. Its friction with the ground depends on the weight it carries.

A Hovercraft has no built-in thrust system -- you will usually want to use at least one *Thruster* to move it. For better direction control, use multiple *Thrusters*.

Wheeled

A Wheeled vehicle is like a car with no engine. It rolls freely fore-and-aft when unpowered, but strongly resists being pushed from side-to-side.

It is possible to power wheeled vehicles with *Thrusters*, but most of the time you'll want to use one of the *Engine* components. An engine applies its power directly to the wheels of the vehicle; the throttle setting on the engine will control the speed.The throttle can be set from -100% to 100% of full power. You will need a large amount of throttle if you put a small engine on a medium or large size vehicle.

You also need a *Steering* component to turn the wheels of the vehicle. The *Steering* component only allows 30 degrees of turning to the left or right. To reverse direction, you should use a negative engine throttle.

Treaded

A Tank has two independent treads, and never rolls freely. It strongly resists being shoved in any direction. In order to move a tank, you need an *Engine* to provide the power, and a *TreadControl* to distribute the power to the treads.

Both the *Engine* throttle and the *TreadControl* must be set for the tank to move. It is easiest to set the engine throttle on full (100%) and then vary the distribution of that power to each tread using a *TreadControl* component. If the left and right treads are both set to 50%, the tank will move forward using half of the engine's throttle.

Illegal Chassis and Components

In order to make each scenario interesting and challenging, you will often find that certain chassis types and components have been disallowed. For

instance, in the ***Drag Race*** you can only choose from hovercraft chassis to build your vehicle.

Once you have chosen a scenario, any vehicle containing forbidden components will be filtered out of the available choices. So if you can't find a vehicle you made, perhaps it is not legal for the scenario you have chosen.

Vehicles with illegal parts will NOT be shown in the holobox.

All user-created vehicles will show up in the Tutorial scenario called ***Testing Ground***, which has no illegal components and allows all chassis types. If you can't find a vehicle that you created in the past, choose the ***Testing Ground*** scenario, then go to the ***Vehicle*** selection screen and scroll through the categories of vehicles.

Saving, Deleting, Copying Vehicles

Vehicles are automatically saved in MindRover whenever you leave the ***Vehicle***, ***Wiring*** or ***Component*** screen. If you drag one of your vehicles into a vehicle slot and give it a new name, it will be saved with that new name. It is no longer available under the old name.

Vehicles are automatically saved

Once you have been playing MindRover for a while you will have many vehicles in your vehicles folder. To clean up your folder and get rid of vehicles you don't want, highlight a vehicle in the holobox and click on ***Delete*** in the upper right of the screen.

Cleaning up your folder

Deleting vehicles from the holobox removes them from your directory and you cannot get them back. MindRover will not allow you to delete the chassis from the "chassis" row.

Copying vehicles

If you like a particular vehicle and wish to use it as the basis for a new vehicle, you can drag the desired vehicle into slot 1. Drag the same vehicle from the holobox into slot 2. When you complete the second drag, this vehicle automatically gets a new name which is the old name plus a number. You cannot compete two vehicles with the same name, so MindRover automatically renames it.

You now have a copy of the original vehicle as well as the original. Both will be saved.

Competing with Your Friends

All scenarios will allow you to remove the CogniToy opponent and replace it with any vehicle you like. If you want to beat all the levels of the game, you have to beat the opponents we supply. However, at any time you can take on some competition from other players. Come to www.mindrover.com and find a worthy opponent!

Remove the CogniToy opponent

You can always drag any vehicle onto a slot and replace the one that's there. You'll also find an empty slot that you can reach by clicking the left button. You can drag any vehicle into the slot for Team 2, and drag your vehicle into Team 1. Then see how you do.

If you would like to restore the slots to their original configurations, you must choose a new scenario, then go back to the scenario you were playing. The default vehicles will be restored.

E-mail or Floppy Exchange

Vehicle files are quite small (usually only 20-30 kbytes) and can be copied to a floppy disk, e-mailed as an attachment to your friend, or uploaded to a website where people are collecting them, exchanging them, or competing them against each other.

Check the web for contests and vehicle upload sites:
www.cognitoy.com

If you start the game from the CD (Windows version only), you will get a menu option called ***Vehicle Transport***, which will let you save your vehicles to a floppy disk or to another area on your hard drive. The ***Vehicle Transport*** will also let you import other vehicles into your MindRover folder.

You can manipulate your vehicle files outside of MindRover. To get to your vehicle files using Explorer, find the folder where you installed MindRover (the default is *c:\games\mindrover*). Here you will find a folder called 'Vehicles' and under that will be one with your login name. In that folder are all your vehicle files.

For Linux users the vehicle files can be found in your home directory:

.loki/mindrover/Vehicles/<user>

Chapter 2

The .vmf file lets you run it; the .wst and .ice files also let you edit it.

There are three files associated with each vehicle you have created. The one with the vmf extension (for instance: kim_dragster.vmf) is the one that you need to copy or upload for others to compete against you.

If you give someone all three files (kim_dragster.ice, kim_dragster.wst, and kim_dragster.vmf), then they will get **owner** information about your vehicle and they will be able to modify it, rename it, and claim it as their own.

If you just give someone the vmf file, then they cannot see into your vehicle's brain. They can compete against your vehicle, but they cannot see your wiring and they cannot make any changes to your vehicle -- not even to change its name!

Don't change the name of a vmf file

NOTE: If you rename a vmf vehicle file outside the game, it will not load in the game.

Also, please be careful to create unique names for your vehicles. You cannot compete two vehicles with the same name.

vmf files must have unique names

MindRover gives you default names that start with your login name. If you keep that part and just change the rest of the name, you are less likely to have problems with uniqueness.

The owner of the vehicle (the one who has the wst and ice files) is the only one who can change the name of the vehicle.

When you receive a vehicle that you would like to run against your own, you can import it using the 'Vehicle Transport' feature in the AutoStart program (for Windows), or you can add the file directly to your vehicles\<login name> folder.

Components

After choosing a scenario and choosing a vehicle chassis, the next step is to add physical components: movement, sensors, weapons, navigation/communication, and extras.

In the ***Component*** selection screen you get a top-down view of the chassis with grid markings. Your components must fit in the open grid spaces on the top of the vehicle.

Components cannot be placed on top of other components and they cannot span across different grids. The different grids light up as your mouse passes over them.

You can rotate the component by 90 degrees as you are placing it by clicking on the right mouse button. Some components can be rotated during play. If you plan on rotating a component while playing (like a *ProximityRadar* or *SpinThruster*), then we recommend that you don't rotate it while placing it. It becomes confusing to try to rotate it in more than one place.

Right-click while dragging to rotate a part before you place it.

The Component chapter of this manual will give you some details on each component. While in the

game, you can also click on a component and then press ***F1*** for detailed help.

Component Types

Movement

The movement components are used to propel a vehicle or affect its direction.

A *Thruster* is used primarily for hovercraft movement. The location of a thruster affects how the vehicle will behave. If you put the thruster on the far left of the vehicle facing forward, when it turns on it will tend to turn your hovercraft towards the right. There is also a *SpinThruster* which can rotate while the thruster is on. This can be used to push your hovercraft in the desired direction.

The three different *Engines* (small, medium, and large) are used with the wheeled and treaded vehicles. These components take up 1, 2 or 4 grid spaces. The placement of the engine does **not** affect the vehicle's performance.

A *Steering* component is used only with a wheeled vehicle to control its front wheels. A *TreadControl* is used only with a treaded vehicle to control each of its treads. It doesn't matter where on the vehicle you place a *TreadControl* or *Steering* component.

Sensors

Sensors are the 'eyes' and 'ears' of the vehicles giving you information on what is in the arena. You use this information to decide how to move or steer your vehicle or when to fire your weapon.

Sensor types include the *TrackSensor*, *BumpSensor*, *Sonar*, *Filter*, *Speedometer*, *SpinOmeter*, *LootSensor* and three types of *Radar*. The *Radar*, *TrackSensor*, and *Sonar* are location-dependent, while the others are not. For instance, the *BumpSensor* detects any collision of your vehicle whether it was in the front, back or on either side. You can place the *BumpSensor* in any open grid space on your vehicle.

Weapons

Weapons are used to damage, slow down or move another vehicle. They do varying amounts of damage. In some scenarios, after a certain amount of damage the vehicle will be destroyed. When this happens, in some cases the competition will end; in other cases, the vehicle will "respawn" and can continue to play.

Most weapons are fixed in place, which means that you must rotate the entire vehicle to aim them. You can set their initial orientation by using the right mouse button to set the mounting position. However, the *Machine Gun* does have a limited ability to adjust its angle during a competition.

Nav/Comm

Navigation and communication components help you to find things and communicate with your team. *BearingSensor, WaypointSensor*, *XYSensor* and *XYFinder* are used to find specific points in the arena; *RadioTransmitter* and *Recevier* allow you to send and receive information to a teammate.

To get more information, including usage notes on these components, select a component and press ***F1***.

Extras

The Extra components are mostly just for fun but can also be used to help debug your vehicle if something isn't working correctly.

For instance, the *Speaker* can be set up to say the numbers from 1-5. You can have the speaker sound the number 1 when your vehicle has reached the first waypoint.

The *RunningLight* was designed to be connected to the *ModeSwitch* to tell you what mode color the vehicle is in. See ***F1*** help on *ModeSwitch* for more information on this component.

The *LootCarrier* is used to pick up objects in the scenario such as the enemy flag. Anything that might be carried by a vehicle will require a *LootCarrier*.

Points and Weights

Each component has a point cost and weight associated with it. The scenario you choose will determine the total amount of weight and total points you have to configure on your vehicle.

For scenarios with more than one vehicle/team, the total points and weight is the sum from each vehicle. So if you build your first vehicle with many heavy components, you may not have enough weight budget left to add basic components on your second vehicle.

If your team has exceeded the points or weight limit, these numbers will turn red and the competition will not run until you remove some components.

Red text on points or weights means that you have tried to install too much.

In general the engines and large weapons weigh the most. Components that are technically complex require the most amount of points. The purely logical components that aren't physical (found in the Wiring screen) have no weight and little or no point cost.

Properties

Each component has a set of *properties*. A property defines some characteristic of the component, such as the range of the radar, or the distance to a waypoint.

Some properties are input properties -- they control some value on the vehicle and affect the way it responds. For example, you use the *Steering* **Angle** property to control the steering.

Some properties are output properties -- they are reported by the component as information, such as the **CurrentSpeed** property of the *Speedometer*.

Finally, some properties are activate properties -- they cause the component to take some action, such as the **Fire** property on weapons.

Setting Initial Values

There are a number of ways you can find out about the properties and events of a component.

The initial value for input properties can be set on the wiring screen. When you select a component (by clicking on it) on the wiring screen, the property area on the right side of the screen shows you a list of the component's input properties. You can adjust the properties here; they are initialized to these values when the scenario starts.

Fly-over help gives you component or wire properties

If you hold your mouse still over a component in the Wiring screen, a help box will appear which shows you these properties and their current settings.

To get more detailed help on a component and read about its events as well as properties, select a component (by clicking on its icon) and press ***F1***.

Events

Events are triggers that originate from a component and can be used to cause the vehicle's behavior to change.

For example, the *BumpSensor* has an event called **Bump**. If your vehicle has a *BumpSensor* on it and it bumps into the wall, it will trigger a **Bump** event. You can use a *wire* to cause this **Bump** event to set the **Angle** property of a *Steering* wheel.

Wiring

To give your vehicles intelligence, you wire components together such that an event from one component (the *source* component) sets the property of another component (the *destination* component).

To create a wire, drag the source component with the left mouse button. You'll see a rectangular outline of the component icon following the mouse. When you pass over a valid destination component, the rectangle will vanish and be replaced by a *wire* connecting the two components. Drop the component when you see the wire and a connection will be made.

To create a wire: drag the source component onto the destination component

If you do not see a wire then you may have the source and destination components backwards. The source component must be able to trigger events and the destination component must have settable input properties.

For example, you can drag a *MediumRadar* component over a *Steering* component and you will get a wire. The *MediumRadar* is the source and can trigger many different events, such as **TurnOn**, **TurnOff** and **Change**. The *Steering* wheel has one settable property, which is the steering **Angle**.

If you try to drag the *Steering* wheel over the *MediumRadar* component, you will not get a wire because the *Steering* component triggers no events. It cannot be the source of a wiring connection.

Once you have created a wire between components you will see an arrow from the source to the destination, indicating the direction of information flow.

We have created default properties for many typical wiring connections. That means most of the time you may only have to make small changes or no changes to the wire property. So don't worry if you don't understand all the wire properties at first. You will get the hang of it!

Wire properties

Like components, wires also have properties. These properties describe how the wire behaves. Selecting a wire (by clicking on its direction arrow) will show you the properties for the wire in the property area along the right side of the screen.

Source event

The source and its event are the first items in the wire property box. You will see the name of the source component, followed by a pull-down box containing all of its events. Most components have from one to three events that they can trigger.

Destination Property

The next item in the wire property box is the destination component and its property. You will see the name of the destination component and a pull-down box containing the list of all its settable properties.

Value/Source Property

In the third section of the wiring property box you decide how to set the destination property. There are two choices.

You can set the destination to a specific value, such as a number or mode color, or you can set the destination property to an output property of the source component. For instance, you can set the *Steering* **Angle** (destination) to the **Output** property of the *Randomizer* (source).

Activate property

There are a few components whose settable property is an 'activate' command such as **Fire** or **Set**. You don't give this destination property a value, you simply activate it. For instance the *RocketLauncher*'s only property is **Fire**.

An example

As an example of different wiring properties, let's say you want the *Speaker* to play a random sound every 2 seconds from its selection of 5 different sound choices.

We need a *Speaker* component, a *Randomizer*, and a *LoopTimer*. To set the LoopTimer to trigger a **Tick** event every 2 seconds, simply click on it and set its **TickTime** property to 2.

Similarly, set the **Minimum** and **Maximum** property values for the *Randomizer* by clicking on the *Randomizer* icon. Set the minimum to 1 and the maximum to 5.

When you click on an icon and change its property values you are setting its initial values. When the vehicle starts running in the competition, these values can change depending on the wiring conditions you set.

If you then create a wire from the *LoopTimer* to the *Randomizer*, you will see that the *LoopTimer* is the source component, and its trigger event is called **Tick**.

The destination component is the *Randomizer* and its property, **Trigger,** is an activate property. **Trigger** means "roll the dice". It is an activate property because you don't need to tell it how much or how many. Just "roll the dice" and get a new random number.

Next create a wire from the *Randomizer* to the *Speaker*. Here, the *Randomizer* is the source and its event is called **Set**. The *Speaker* is the destination and the property we want to set is **PlaySound**.

Finally, set the **PlaySound** property to the **Output** property of the *Randomizer*. Now, when you "roll the dice", the *Speaker* plays the sound specified by the number you rolled.

Multiple Wires

Each wire you create can set one property on the destination component. You can add as many wires as you need between components to set multiple properties.

For instance, to set both the left and right *TreadControl* to 100% when the radar turns on, you need to create two wires from the *Radar* component to the *TreadControl* component. One wire will set the left tread to 100%, and the other will set the right.

A component like the *TreadControl* requires that two wires be used for each direction you want to move. So to move forward, left and right would require 6 wires to the same *TreadControl* component.

To help organize your wiring, use *Broadcast* components. With three *Broadcast* components, one labeled 'TurnLeft', one labeled 'TurnRight', and one labeled 'Forward', you can spread out the wires going to your *TreadControl*. Click on the *Broadcast* component and press ***F1*** to get more details on how to use it.

Tip: use Broadcasts to help organize your wiring.

ICE Code

Behind the graphical interface which allows you to wire components together is a programming language called ICE. Every time you add a component, set its properties, or add wires between components, new lines of ICE code are generated.

The ICE code for each vehicle is saved with the extension '.ice'. Outside of the game, you can look at this code with a text editor. You will find the '.ice' file for your vehicle in the 'Vehicles\<login name>' folder underneath your MindRover installation folder.

If you are interested in learning more about ICE, please come to our website and find the Player Forum on ICE.

Your vehicle is automatically saved whenever you move to a new screen or hit the "Go" button. When

it is saved, three files are generated. The .ice file is the ICE code. The .wst file contains the wiring state information which will allow MindRover to recreate the component and wiring screen for this vehicle. The last file is the .vmf, virtual machine file, or 'brain' file. The brain file is the one that tells your vehicle what to do in a machine code that it understands.

Come back to the CogniToy website often to get new components and scenarios as well as information on creating your own objects in ICE.

Running the Competition

Once you have added components and wired them up, it's time to see what your vehicle can do on its own! Hit the ***GO*** button and watch what happens.

During the competition you can change your camera view (see below), pause the physics (***F3***), and/or get an update on health and score (***ESC***).

Each scenario has objectives, and when they are met by your team or the opposing team, you will get a win/lose screen. At this point you have several choices:

The ***Instant Replay*** will play the exact same competition with the same starting conditions. This is useful when you want to analyze what your vehicle did or what the opponent did.

The ***Play Again*** option will allow the scenario to choose different starting positions (if available) or

other random events so that you will not get the exact same result. Some scenarios, such as ***Drag Race***, do not vary their starting conditions, in which case ***Play Again*** and ***Instant Replay*** will have the same result.

Return to the Console allows you to go back and make changes to your vehicle, or to choose a new scenario or new vehicle.

Continue Scenario will allow you to continue watching the current scenario. To get back to the console, press ***ESC*** and choose ***Return to the Console***.

The Go Button

The ***Go*** button is only enabled when the conditions are right to launch a competition. There are a number of reasons why it might not be enabled:

1) You don't have all the vehicle slots filled. Go into the Vehicle selection screen and make sure there is a vehicle in every slot.

2) Your vehicle or your team has exceeded the Point or Weight limits. If you have gone over the budget in either area, the numbers which display the points and weights will turn red. Remember to check both vehicles on your team if it is a 2-on-2 competition. If you have gone over the limit, you need to remove some components before continuing.

Camera controls

During a competition you may want to change your camera angle to get a better view. The following table shows you which keys to press:

Key	Point of View
1	look at vehicle 1 (your vehicle)
2	look at vehicle 2
3	look at vehicle 3
4	look at vehicle 4
Shift+1	follow camera for vehicle 1
Shift+2	follow camera for vehicle 2
Shift+3	follow camera for vehicle 3
Shift+4	follow camera for vehicle 4
9	Scoreboard view (if there is one)
0	Autocam or “best” view
Shift+0	drive the camera with your mouse (use left and right mouse to move forward and back)

If you are using Shift-0, then you can pause the physics with ***F3*** and zoom the camera to just the right place for a screenshot. Use the ***Print Screen*** key to get a screenshot. You will find this tga file in your MindRover install directory.

Finding Bugs

You can (and should) go back and forth between testing your vehicle in the competition and fine tuning it in the console. If it isn’t going well in the competition you don’t have to wait for one team to

win; just hit the ESCAPE key, go back to the console and make changes to your vehicle.

If you test your vehicle after each new addition or sets of wires, you will be able to find and fix problems much more quickly. You can use the 'Extra' and 'Debugging' components such as the *DebugMessage*, *Fireworks*, *Speaker* and *RunningLight* to help you diagnose problems.

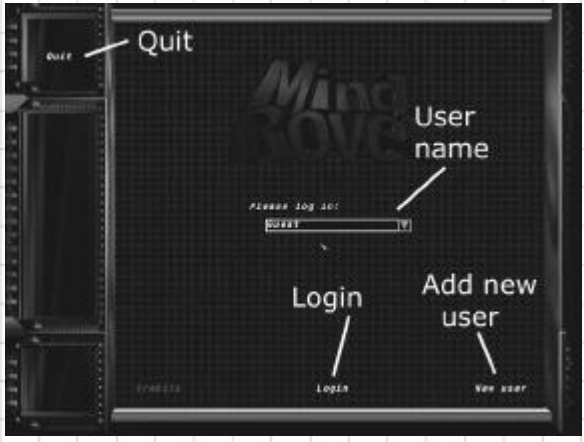
For instance, you can wire the *Fireworks* launcher up to the *TrackSensor* and have it fire the *Fireworks* whenever the *TrackSensor* turns on.

Another idea is to wire the *RunningLight* to the *ModeSwitch* and it will change color depending on the vehicle mode.

Chapter 3
The Console

Login Screen

The *Login screen* is the first screen you see when starting MindRover. If you have logged in before, your previously created vehicles will be loaded and any scenarios you have finished will be checked off.



The pull-down menu in the center of the screen allows you to choose which user you would like to login as. Clicking on the down arrow next to the name will bring up a list of all users. Select your

username and click the button that says ***Login*** in the lower center of the console.

Creating a new user ID

If you have not logged in before, you can create a new user by clicking the ***New user*** button in the lower right corner of the screen. Type in your name after clicking this button and a new user will be created for you. Click ***OK***, then click ***Login*** to start a game using your newly created user.

The "Guest" user is the default user name and is available for those who do not wish to create a custom login name.

The ***Quit*** button exits MindRover. To access this screen at any time click the ***Logout*** button in any of the console screens.

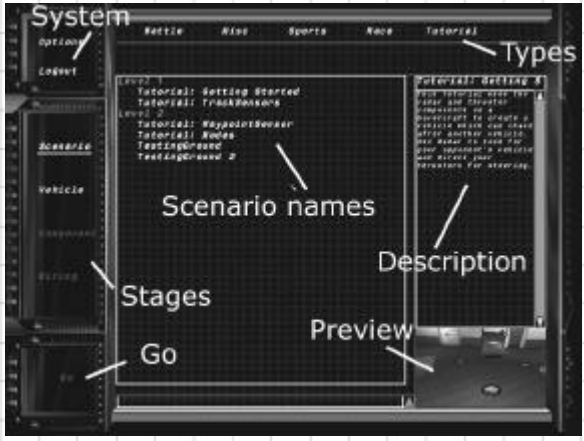
Hint: F12 exits MindRover immediately, with no questions asked

If you would like to exit from the game immediately without logging out first, you can hit ***F12*** at any time.

Scenario Selection Screen

After logging into MindRover you will be brought to the *Scenario Selection Screen*. In the upper left portion of the console are the system buttons. ***Logout*** will bring you back to the login screen to quit or login as a new user.

Chapter 3



The ***Options*** button will bring you to a console where you can change the music volume, sound effects volume, or screen brightness. Hit ***OK*** to get back to the Scenario Selection Screen.

Along the left column are four buttons that will bring you to the four stages of MindRover play: ***Scenario***, ***Vehicle***, ***Component***, and ***Wiring***. Each of these is described in detail below. The lower left ***GO*** button will launch the competition with your vehicles. The other areas of the console vary depending on the stage you have chosen.

Scenario Categories: *Battles, Misc, Races, Sports, and Tutorial*

The first step to playing MindRover is choosing which *scenario* you would like to play. Click the button on the left side of the screen labeled ***Scenario*** to get to the Scenario Selection Screen. If you have just logged in, you are automatically placed in the Scenario Selection Screen. Along the

top of the screen you will see the various categories of scenarios: ***Battles***, ***Misc***, ***Races***, ***Sports***, and ***Tutorial***. Clicking on one of these will bring up a list of scenarios in that category. When you first log in, the Tutorial category and the first tutorial are highlighted.

On the right side of the console is the *Property Box*. When you click on a scenario, a description of it will appear in the Property Box. Read these carefully for explanations of each of the scenarios. In many cases there is specific information that you will need in order to successfully play a scenario.

Also, you can hit the ***F1*** (help) key to get information on the scenario you have chosen, including a map of waypoints. Once the help screen has popped up, you can scroll through other help topics as well.

Below the Property Box on the right is the *Preview screen*. In the preview you will see a flyby that shows the arena in which the scenario will take place.

Vehicle Selection Screen

Once you have chosen a scenario, you may begin building a vehicle for that scenario. Click on the ***Vehicle*** button on the left side to go to the *Vehicle Selection Screen*.

Chapter 3

Along the top of this screen you will see the *holobox*. The holobox contains a set of icons representing the various chassis for you to choose from as the base for your vehicle.

There are several ways to navigate in the holobox: First, you may click the four arrow buttons on the right side of it. You can change rows with the pull-down to the right. For faster navigation you may also 'right-drag' the contents of the box around. Do this by clicking and holding the **right** mouse button in the holobox and dragging it.

The top row of vehicles in the holobox are the empty chassis used when you want to build a vehicle from scratch. Other rows will contain your previously created vehicles, sorted by the scenario type in which you created them. You can scroll through these rows with the arrows or the pull-

down box to the right of the holobox. If you have just logged in there will be no other rows.

Only those chassis allowed by the currently selected scenario will be displayed in the holobox. For example, if you have created a vehicle for a battle scenario that includes weapons, that vehicle will not show up when you select the Sumo scenario, since Sumo does not allow weapons.

Once you select a chassis you can read its name and description in the Property box on the right.

In the center of the screen you will see *Vehicle Slots* arranged by teams. When playing against the computer you are always the blue team (Team 1), on the left, and the opponent represents the red team (team 2), on the right.

Many of the easier scenarios (level 1) have a half-built tutorial vehicle available for people who would like some hints for getting started. If a tutorial vehicle exists, you will see an arrow just to the right of your blue team vehicle slot. Click on it and the tutorial vehicle will be loaded into your slot. You can modify this vehicle for your own use. The property box gives you hints on completing the vehicle.

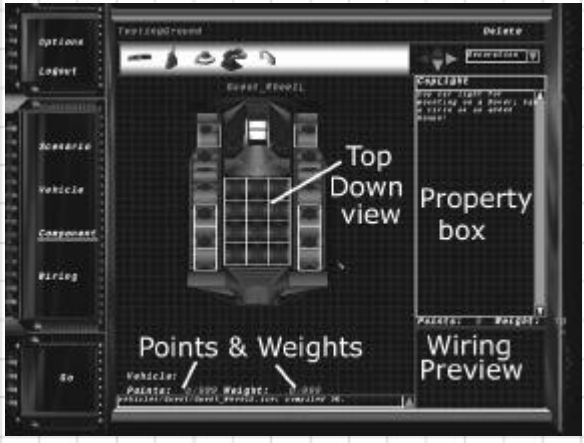
The opponent that shows up for the red team is an easy level opponent. Many scenarios have one or two other opponents (medium or hard level) that you can get by clicking on the arrow just to the right of the vehicle slot.

To start a vehicle from scratch, drag a chassis from the chassis row into an empty team 1 vehicle slot. Alternatively, scroll through the holobox rows to find a vehicle you started before and drag that into the empty slot.

Once a vehicle has been dropped into the slot you can see what it looks like in the lower right Preview Screen, and you can edit its name and description in the Property Box.

Component Selection Screen

Click on the ***Component*** button on the left side of the screen to go to the *Component Selection Screen*. This is where you add *physical components* to your vehicle.



The components available for this scenario are displayed in the holobox at the top of the screen. The center of the screen displays a top-down view of your vehicle showing its grid points.

Each component requires a certain number of *grid squares* depending on its size. To see how much space a component will take up, drag it from the holobox onto the vehicle without letting go of the mouse. A set of colored squares outlines the spaces the component will take up on your vehicle.

You will also see the grid squares light up as a group when you fly your mouse over them. Highlighted grid squares are all part of one group and are at the same level on the vehicle. You cannot drop a component across different levels of grid.

To place a component, drag it from the holobox until it is over the vehicle and release the mouse button. To change the orientation of the component, you can click the right mouse button while you are dragging the component. To remove the component, pick it up again with the left mouse button and drag it off the edge of the vehicle.

Right-click while dragging a component to rotate it.

You can view your vehicle in 3D with the components attached to it by clicking and dragging the **right** mouse button over the vehicle. This will cause the vehicle to rotate. Letting go of the mouse button will return to the top-down view.

Right-drag on the vehicle to spin the 3D view of it.

The Preview Box (lower right corner) will show you a preview of the *Wiring Screen*.

Each component has a specific point cost and weight associated with it in addition to taking up grid space on your vehicle. You can see these values in the Property Box when you select a component.

The total points and weight available to you are for all vehicles on your team. If you only have one vehicle, then all the points and weight can be used by that one vehicle. You can see the total and the maximum allowable points and weight below the vehicle you are working on.

If you have exceeded the maximum allowed in either points or weight for your team, these values will turn red. Remove some components or exchange them for lighter or cheaper ones until the points and weight turn green again. The ***GO*** button will be disabled and you will not be able to run the competition if your team vehicles are over either limit.

Wiring Screen

Click the ***Wiring*** button or the wiring preview in the component selection screen to go to the *Wiring Screen*. This is where you teach your vehicle how to use all the components you have equipped it with in order to beat the scenario.

The center of the wiring screen is your *workbench*. This is the space in which you program your vehicle.

Navigating the Wiring Screen

To move around your workbench **right**-drag on the workbench. Click on ***Fit All*** in the upper right or the ***Tab*** key on your keyboard to fit all of the components in your view. You can use the ***Zoom in*** and ***Zoom out*** buttons in the upper right to move around on your workbench. Alternatively, holding down ***z*** and left-clicking will zoom in; holding down ***z*** and right-clicking will zoom out.

Zoom in/out

You can select components by clicking on them with the left mouse button. You can select a group of components by clicking with the left mouse and dragging a box enclosing multiple icons. All selected icons have a white outline around them. You can move this group by clicking and dragging any one of the icons in the group.

Select/move components

If you select an icon that represents a physical component (see next section for differences between physical and logical) the viewport in the lower right will zoom in on the component you have selected. This will remind you where you put the component on the vehicle. Feel free to move the icon by dragging it anywhere you would like on the workbench.

The holobox along the top of the wiring screen now contains logical components that you can use to help in programming your vehicle (see below). The property box to the right of the workbench displays component and wire properties.

Logical Components

Logical components are components that have no physical representation on your vehicle. They cannot sense the outside world or affect your vehicle directly in any way. Instead, these components are used to help you control the physical components which you added to your vehicle in the Component Selection Screen.

To add a logical component, simply drag the icon out of the holobox onto the workbench. Clicking on each of the components in the holobox will give you a short description in the property box. Also, you can hit ***F1*** to get more information for each component.

Deleting a Logical Component

To delete a logical component, simply select the component or components you wish to delete and press delete on your keyboard.

Deleting a Physical Component

To delete a physical component, you must go back to the Component Selection Screen (click on the ***Component*** button on the left), highlight the component and click on ***Delete*** in the upper right of the screen. Or you can move the component off the vehicle. You cannot delete a physical component from within the wiring screen.

Setting Properties

The most basic form of programming in MindRover is setting the properties of the components you have previously placed. Selecting a component will bring up a list of its properties and controls with which to set them. For example, selecting a *SpinThruster* will bring up an **Angle** control for setting the angle at which the thruster pushes, and a **Thrust** control for setting how much force should be applied. When the vehicle is started it will take on these specified properties until a wire causes them to change.

Creating Wires

Wires are messengers of events from one component to another. Most components can cause *events*. A *MediumRadar*, for instance, causes an event called **TurnOn** whenever something passes in front of its line of sight. Wires allow you to harness these events to change the properties of other components. In effect, that is all a wire does: It listens for an event on the *source* component and changes a property on the *destination* component. With this seemingly simple model you can teach your vehicle to do almost anything.

Creating a wire

To create a wire, click and drag the component you want to be the source of the signal onto the component you want to receive the message. When

the mouse cursor moves over another component a line will appear. Releasing the mouse button while this line is present will create a wire.

There is no one way to solve a given problem and there are thousands of ways to wire your vehicle. Explore!

The Competition

Once you have wired your vehicle, it's time to send it to the competition. Click the ***Go*** button. After loading the scenario and the vehicles, you will see a countdown screen, and then the competition starts.

Hit ***ESC*** to go back to the console and make adjustments.

Within the competition you can change your camera view as follows:

Key	Point of View
1	look at vehicle 1
2	look at vehicle 2
3	look at vehicle 3
4	look at vehicle 4
Shift+1	follow camera for vehicle 1
Shift+2	follow camera for vehicle 2
Shift+3	follow camera for vehicle 3
Shift+4	follow camera for vehicle 4
9	Scoreboard view (if there is one)
0	Autocam or “best” view
Shift+0	drive the camera with your mouse

When driving the camera around with your mouse, use the left mouse to zoom in, the right mouse to zoom out, and move the mouse to turn and move within the room.

For most scenarios that are 1 on 1, you are vehicle 1 (team 1) and your opponent is vehicle 2. In a 2 on 2 match, you have vehicles 1 and 3 (both team 1) and your opponent has vehicles 2 and 4.

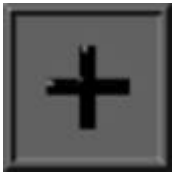
Once you have successfully completed a scenario, it will be checked off in the Scenario Selection Screen.

Chapter 4

Component Reference

In this reference you will find the component description, category, properties, events, points and weight.You can get more detailed information and usage notes from within MindRover by selecting the component and pressing the F1 key.

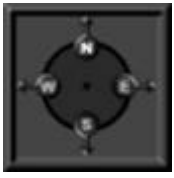
Check the MindRover website for add-on components that can be downloaded and added to this game: www.mindrover.com



Add

A component that adds its two inputs and generates an output equal to the sum.

Category: Logical / Math
Weight/Points: 0/0
Properties: Input1, Input2, Output
Events: Change, Set



BearingSensor

A sensor that will tell you if you are left of, right of, or directly heading for a reference bearing.

Category: Physical / Nav/Comm
Weight/Points: 10/30
Properties: DeltaBearing, FuzzyAngle, RefBearing, TrueBearing
Events: Change, LeftOfRef, OnRef, RightOfRef

Broadcast

A component used to reproduce activate events.

Category: Logical / Logic
Weight/Points: 0/0
Properties: Trigger
Events: Set

BumpSensor

A sensor that detects a collision between your vehicle and another object.

Category: Physical / Sensors
Weight/Points: 30/10
Properties: FilterPlug
Events: Bump, PlugIn

Compare

A component that will compare two numeric values. This component can be set to trigger on **GreaterThan**, **LessThan**, or **EqualTo**.

Category: Logical / Logic
Weight/Points: 0/0
Properties: Calc, Input1, Input2
Events: EqualTo, GreaterThan, LessThan

CopLight

A cop car light bar with a siren.

Category: Physical / Extras
Weight/Points: 0/0
Properties: Play
Events: None

Deadweight

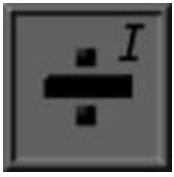
A large piece of lead used to add extra weight to your vehicle.

Category: Physical / Movement
Weight/Points: 100/0
Properties: None
Events: None

DebugMessage

Allows you to display a message string while the scenario is running

Category: Logical / Debugging
Weight/Points: 0/0
Properties: Color, Message
Events: None



Divide

A component that divides Input1 by Input2 and will give you the Quotient and Remainder.

Category: Logical / Math
Weight/Points: 0/0
Properties: Calc, Input1, Input2, Output, Quotient, Remainder
Events: Change, Set

Filter_IFF

A filter (Identify Friend or Foe) that is used to discriminate between friend, foe, and projectile.

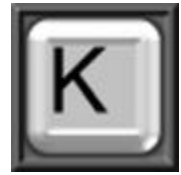
Category: Physical / Sensors
Weight/Points: 10/40
Properties: EnemyVehicle, FilterSocket, Other, Projectile, State, Teammate
Events: Change, TurnOff, TurnOn

Fireworks

A component that shoots off a brief fireworks display when activated.

Category: Physical / Extras
Weight/Points: 0/0
Properties: FireColor
Events: None

KeySensor



A component that will allow you to use the Keyboard to trigger events in the world. It is not a legal component in most scenarios, but a good debugging tool.

Category: Logical / Debugging
Weight/Points: 0/0
Properties: KeyLast, KeyList
Events: Key1, Key2, Key3, Key4, Key5

LargeEngine

An engine that can be used with a wheeled or treaded chassis.

Category: Physical / Movement
Weight/Points: 300/30
Properties: Throttle
Events: None

Laser

A laser gun with a good range and a moderate repeat rate. Damage decreases with range.

Category: Physical / Weapons
Weight/Points: 75/25
Properties: Fire
Events: None

LogicalAND

A component that will tell you when two logical inputs are both true.

Category: Logical / Logic
Weight/Points: 0/0
Properties: InputA, InputB, State
Events: Change, TurnOff, TurnOn

LogicalNOT

A component that will give you the opposite of the input state.

Category: Logical / Logic
Weight/Points: 0/0
Properties: InputA, State
Events: Change, TurnOff, TurnOn

LogicalOR

A component that will tell you when either of its two inputs is true.

Category: Logical / Logic
Weight/Points: 0/0
Properties: InputA, InputB, State
Events: Change, TurnOff, TurnOn

LongRangeRadar

A radar that can detect objects as far away as 15 meters with as much as 30 degrees scan width.

Category: Physical / Sensors
Weight/Points: 30/30
Properties: Angle, FilterPlug, MaxRange, ScanWidth, State
Events: Change, PlugIn, TurnOff, TurnOn

LoopTimer

A settable timer that automatically restarts after counting down.

Category: Logical / Timing
Weight/Points: 0/0
Properties: TickTime
Events: Tick

LootCarrier

A component that allows your vehicle to carry a flag, jewels or other 'loot'.

Category: Physical / Extras
Weight/Points: 30/10
Properties: Drop, LootColor, State
Events: Change, TurnOff, TurnOn

LootSensor

A sensor that will give you the bearing and distance to the 'loot' - jewels, enemy flag, or other good stuff.

Category: Physical / Sensors
Weight/Points: 30/30
Properties: Bearing, Distance, LootColor
Events: Change, NotFound

MachineGun

A rapid fire gun mounted on a pivoting turret.

Category: Physical / Weapons
Weight/Points: 100/15
Properties: Angle, Fire
Events: None

MediumEngine

An engine that can be used with a wheeled or treaded chassis.

Category: Physical / Movement
Weight/Points: 200/30
Properties: Throttle
Events: None

MediumRadar

A radar that can detect objects within 5 meters with as much as 90 degrees scan width.

Category: Physical / Sensors
Weight/Points: 30/30
Properties: Angle, FilterPlug, MaxRange, ScanWidth, State
Events: Change, PlugIn, TurnOff, TurnOn

MineLayer

A component that drops explosive proximity mines.

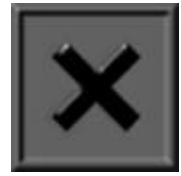
Category: Physical / Weapons
Weight/Points: 75/20
Properties: Fire
Events: None

ModeSwitch

A component that will change your vehicle's 'mode' during a competition. You can define up to 7 modes, specified by the colored wires in the wiring screen.

Category: Logical / Logic
Weight/Points: 0/0
Properties: Mode
Events: Change, Leave, Set

Multiply



A component that multiplies its two inputs and generates an output equal to the product.

Category: Logical / Math
Weight/Points: 0/0
Properties: Input1, Input2, Output
Events: Change, Set

ProximityRadar

A radar for detecting objects within 3 meters with as much as 360 degrees scan width.

Category: Physical / Sensors
Weight/Points: 30/30
Properties: Angle, FilterPlug, MaxRange, ScanWidth, State
Events: Change, PlugIn, TurnOff, TurnOn

RadioReceiver

A component used to receive signals from a RadioTransmitter.

Category: Physical / Nav/Comm
Weight/Points: 10/30
Properties: IncomingNumber, Station
Events: NumberReceived

RadioTransmitter

A component used to send signals to a RadioReceiver.

Category: Physical / Nav/Comm
Weight/Points: 10/30
Properties: SendNumber, Station
Events: None

Randomizer

A component that generates a random number within a specified range.

Category: Logical / Math
Weight/Points: 0/0
Properties: Maximum, Minimum, Output, Trigger
Events: Set

RangeTest

A component used to detect whether a value is above, below or within a certain range of values.

Category: Logical / Math
Weight/Points: 0/0
Properties: Input, Maximum, Minimum, Output
Events: AboveRange, BelowRange, Change, InRange, Set

RocketLauncher

A component that fires a slow but deadly rocket -- watch out for the splash damage!

Category: Physical / Weapons
Weight/Points: 150/20
Properties: Fire, RocketSpeed
Events: None

RunningLight

A component that helps you find your vehicle in a crowd or helps you debug your vehicle's behavior.

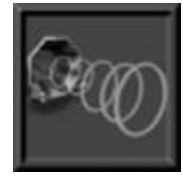
Category: Physical / Extras
Weight/Points: 0/0
Properties: Mode
Events: None

SmallEngine

An engine that can be used with a wheeled or treaded chassis

Category: Physical / Movement
Weight/Points: 100/30
Properties: Throttle
Events: None

Sonar



A component that will give you the distance to the nearest object in front of it. You can use a Filter_IFF to filter out unwanted objects.

Category: Physical / Sensors
Weight/Points: 30/30
Properties: Angle, Distance, FilterPlug, Fire, MaxRange
Events: NoPing, Ping, PlugIn

Speaker

A component that plays a number of different sounds. Use for taunting an opponent or for debugging your vehicle.

Category: Physical / Extras
Weight/Points: 0/0
Properties: PlaySound, SoundGroup
Events: None

Speedometer

A sensor used to give you the speed of your vehicle.

Category: Physical / Sensors
Weight/Points: 30/30
Properties: CurrentSpeed, Fuzziness
Events: Change

SpinOMeter

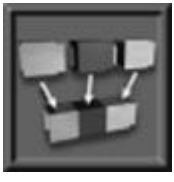
A component that tells you how fast you are spinning

Category: Physical / Sensors
Weight/Points: 30/30
Properties: CurrentSpeed, Fuzziness
Events: Change

SpinThruster

A thruster that is rotatable, a bit heavier and more costly than the simple Thruster.

Category: Physical / Movement
Weight/Points: 120/30
Properties: Angle, Thrust
Events: None



Splice

Combines text and/or numbers into a single message

Category: Logical / Debugging
Weight/Points: 0/0
Properties: Calc, Message, Part1, Part2, Part3, Part4
Events: Change, Set

Startup

A component that gives a single tick at the beginning of the scenario.

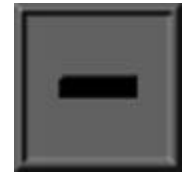
Category: Logical / Timing
Weight/Points: 0/0
Properties: None
Events: Tick

Steering

A component that allows you to steer a wheeled vehicle.

Category: Physical / Movement
Weight/Points: 30/10
Properties: Angle
Events: None

Subtract



A component that subtracts input2 from input1 and generates an output equal to the difference.

Category: Logical / Math
Weight/Points: 0/0
Properties: Input1, Input2, Output
Events: Change, Set

Switch

A component that reproduces events if it is enabled.

Category: Logical / Logic
Weight/Points: 0/0
Properties: Enabled, Toggle, Trigger
Events: Change, Set, TurnOff, TurnOn

TaxiLight

A Taxicab light bar for mounting on a vehicle. It plays a sound when triggered.

Category: Physical / Extras
Weight/Points: 0/0
Properties: Play
Events: None

Thruster

A component that applies a force in the desired direction.

Category: Physical / Movement
Weight/Points: 75/10
Properties: Thrust
Events: None

Timer

A one-shot settable timer which can be paused and restarted.

Category: Logical / Timing
Weight/Points: 0/0
Properties: PauseTimer, RestartTimer, TickTime
Events: Tick

TrackSensor

A component that detects whether the sensor sees the track.

Category: Physical / Sensors
Weight/Points: 20/30
Properties: Angle, Range, State
Events: Change, TurnOff, TurnOn

TreadControl

A component that controls power to the left and right treads of a treaded vehicle.

Category: Physical / Movement
Weight/Points: 50/10
Properties: LeftTread, RightTread
Events: None

Variable

A component to store a numeric variable. Can also be used as a counter.

Category: Logical / Math
Weight/Points: 0/0
Properties: IncrementBy, Input, Output, Query
Events: Change, Querying, Set

WaypointSensor

A sensor that gives you the distance and bearing to the next waypoint.

Category: Physical / Nav/Comm
Weight/Points: 10/30
Properties: Bearing, CurrentWaypoint, Distance, WaypointList
Events: Change, HitWaypoint, NotFound

WeldingTorch

A weapon used to inflict close-range damage on your opponents.

Category: Physical / Weapons
Weight/Points: 100/10
Properties: Fire
Events: None

XYFinder

A component that will report the bearing and distance to a specified XY position.

Category: Physical / Nav/Comm
Weight/Points: 10/30
Properties: Bearing, Distance, XPosition, YPosition
Events: Change, HitWaypoint

XYSensor

A sensor used to determine your position in the world.

Category: Physical / Nav/Comm
Weight/Points: 10/30
Properties: XPosition, YPosition
Events: Change

Weapon Statistics

Laser

Refire rate: 2.5 seconds
Damage: 10 hit points max, varies with distance
Range: 10 meters
Speed: instant hit

Machine Gun

Refire rate: 1 round/second
Damage: 3 hit points/bullet; 10 bullets/round
Range: 8 meters
Speed: instant hit
Pivots: +45 to -45 degrees; 20 degrees/second

Mine Layer

Refire rate: 0.8 seconds
Damage: 40 hit points for direct hit
Range: 0 meters
Speed: 0 (mines don't move)

Rocket Launcher

Refire rate: 3 seconds
Damage: 15, 25, or 50 hit points for direct hit
Range: infinite
Speed: 1, 2, or 3 meters/second

Welding Torch

Refire rate: 2 seconds
Damage: 20 hit points/second
Range: 1 meter
Speed: instant hit

Chapter 5
Credits

Kent Quirk:
Game Architect, Lead Designer and Programmer, Management

Kim Quirk:
Management, Marketing, QA, Documentation

Zach Morong:
Lead Artist, Arena and Vehicle Design

Nat Goodspeed:
Implementation Architect, Programmer

Kendra Kratkiewicz:
Game Developer

Ike Adams:
Game Developer

Brian Sharp:
Graphics Engine Programmer

Charlie Cleveland:
Game Developer

Steve Maitland Audio Design:
Music and Sound Effects

Interns:

Matt Cole, Jeff Dubrule, Al Reed, Lincoln Quirk, Jeff Scott

Consulting artists:

Richard Bornemann, Janet Bornemann, David Burke, Randall McLamb

QA:

Matt Cole, Patricia Pizer, Lincoln Quirk, Al Reed, Glenn Sugden

Contributing Beta Testers:

Sam Adelman, Pat Allred, Craig Backlin, Justin Bailey, Shannon Beagle, Bill Benedict III, Steve and Reed Benjamin, James Berge, Rick Blair, Ross Borgeson, Daniel Bryant, Jason Coan, Ron Coit, Chris Cole, Ryan Cornetta, Alex Crew, Jonathon Deonarine, Patrick Dodson, Eric Ellingson, Damian Frank, Jason Giannini, Daryl Gleason, Ben Goodman, Peter Goodspeed, Eric Gross, Steve Hodson, Dan Holmes, David Huang, Peter and Natalie Kertzner, Niklas Konstenius, Daniel LaLiberte, James MacIntosh, Dave McClosky, Les Nelkin, Bill Oakford, Chris Quirk, Morgan Quirk, Eyal Ron, Eric St. Onge, Neil Stern, Brian Stormont, Dan Tevin, Paul Vadine, Sylvester Wong, Michael Zarozinski, Tijs Zwinkels, "Chaos", "FEPSDevGroup", "Hugo", "Jediah", "Mike"

Special Thanks to:

Chuck Olson, Wendell Smith, Frank Zenie, Burleigh Hutchins, Art Bardige, Sandy Goseland, Rick Goodman, Cindy Null, Ryan Cornetta, Ned Roos.

Credits

Canine Companionship

Bella

CD Notes

All MindRover music was created by Steve Maitland, of Steve Maitland Audio Design.

www.smaudio.com

Track	Name
1.	MindRover Game Data track
2.	*Ice Bell*
3.	*Life On Ice*
4.	*Absolute Zero*
5.	*Brain Flakes*
6.	*Cryogenic*
7.	*Run Below*
8.	*Frozen Assets*
9.	*Frosting*
10.	*Icescape (part 1)*
11.	*Icescape (part 2)*
12.	*Incognito*
13.	*Jovian Moon*
14.	*Cold Solder*
15.	*Convolve*