**KOPIN CORPORATION**

GOLDEN·I

# User Guide

Revision 3.5.1

KOPIN

# PLEASE READ BEFORE PROCEEDING

Golden-i 3.5 Developer Kit Headsets are designed specifically for indoor software application development, for providing indoor Golden-i deployment demonstrations and for integrating Golden-i use with customer's current legacy hardware and software platforms. Golden-i 3.5 is an indoor office environment laboratory development tool and as such, is not rated, nor designed for outdoor use, nor for use in any indoor or outdoor industrial or hazardous environment. Golden-i 3.5 as an indoor development tool is not sealed of moisture, dust, chemicals, gases and is not packaged for adverse shock or vibration. Golden-i 3.5 Developer Kit Headset display and backlight have been specifically limited for indoor office environment use only.

## THIS DEVICE HAS BEEN DEVELOPED FOR SOFTWARE DEVELOPMENT, LABORATORY LEARNING AND DEMONSTRATION PURPOSES ONLY

- **THIS DEVICE HAS BEEN DESIGNED FOR USE INDOORS ONLY**
- **THIS DEVICE IS DESIGNED FOR BATTERY POWERED OPERATION ONLY**
- **THIS DEVICE IS NOT DESIGNED TO BE ROBUST OR RUGGED AND IS NOT SUITABLE FOR PRODUCTION, INDUSTRIAL OR HAZARDOUS ENVIRONMENTS**
- **THIS DEVICE IS NOT DESIGNED TO BE EXPOSED TO MOISTURE, DUST, CHEMICALS, GASES, CORROSIVE ENVIRONMENTS NOR SHOCK AND VIBRATION**
- **THIS DEVICE IS NOT DESIGNED TO BE USED OUTDOORS**
- **THIS DEVICE IS NOT DESIGNED TO BE USED IN BRIGHT AMBIENT LIGHT**
- **THIS DEVICE IS NOT DESIGNED TO BE USED WHILE OPERATING MACHINERY OR ANY VEHICLES**

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**STOP USING THIS DEVICE OR ITS EYEPIECE IMMEDIATELY IF EXPERIENCING HEADACHES, VERTIGO, DIZZINESS OR NAUSEA**

# Terms and Conditions:

BUYER UNDERSTANDS THAT ANY SYSTEM USED NEAR THE HUMAN EYE MAY DISTRACT OR OBSTRUCT THE USER'S VISION, AND THAT INTERACTIONS BETWEEN THE SYSTEM AND THE USER'S VISION MAY CAUSE OR CONTRIBUTE TO ASSOCIATED FATIGUE, EYE STRAIN, OR OTHER ADVERSE MEDICAL EFFECTS OR CONDITIONS. BUYER ACCORDINGLY UNDERSTANDS THAT SUCH SYSTEM SHOULD NOT BE USED UNDER CIRCUMSTANCES WHERE SUCH VISUAL DISTRACTIONS, OBSTRUCTIONS, OR INTERACTIONS MAY CREATE A RISK OF HARM TO THE USER OR TO OTHERS IN THE VICINITY OF THE USER. BUYER AND ITS CUSTOMERS SHALL HAVE SOLE AND COMPLETE RESPONSIBILITY FOR DISTRIBUTING AND USING THE SYSTEM IN A MANNER THAT DOES NOT CREATE A RISK OF HARM TO USERS OF THE SYSTEM OR TO OTHERS IN THE VICINITY OF SUCH USERS. IN THIS REGARD THE OBLIGATIONS OF BUYER AND ITS CUSTOMERS SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO, PROVIDING PROPER INSTRUCTIONS AS TO SAFETY AND USE, AND ADEQUATE WARNINGS TO END-USERS AS TO THE RISKS OR DANGERS ASSOCIATED WITH THE USE OR MISUSE OF ANY SUCH SYSTEMS. KOPIN SHALL NOT BE RESPONSIBLE FOR ANY CLAIMS, LIABILITIES, DAMAGES, COSTS OR EXPENSES ("CLAIMS") ARISING OUT OF ANY ACTUAL OR ALLEGED FAILURE TO PROVIDE ADEQUATE INSTRUCTIONS OR WARNINGS TO BUYER'S CUSTOMERS OR END-USERS, OR ANY ACTUAL OR ALLEGED FAILURE TO PLACE RESTRICTIONS OR LIMITATIONS ON THE USE OR DISTRIBUTION OF SUCH SYSTEMS. BUYER EXPRESSLY AGREES TO INDEMNIFY KOPIN, AND TO HOLD KOPIN HARMLESS, WITH RESPECT TO ANY SUCH CLAIMS.

# IMPORTANT HEALTH INFORMATION AND SAFETY PRECAUTIONS

When using this product, the safety precautions below must be taken to avoid possible legal liabilities and damages.

Retain and follow all product safety and operating instructions. Observe all warnings in the operating instructions on the product.

To reduce the risk of bodily injury, electric shock, fire, and damage to the equipment, observe the following precautions.

## ELECTRICAL SAFETY

This product is intended for use when supplied with power from the designated battery. Other usage may be dangerous and will invalidate any approval given to this product.

Do not disassemble the battery pack, battery charger or the product as this may expose you to dangerous voltages or other risks. Incorrect reassembly can cause electric shock or fire when the product is subsequently used.

Do not insert anything into the battery, battery charger or product because this may cause damage to the internal components or cause injury to you.

Avoid contact with liquids. Do not locate the battery, battery charger or product near water, for example, near a bathtub, sink or rain. This may cause damage to the internal components or to you.

## SAFETY PRECAUTIONS FOR PROPER GROUNDING AND CONNECTION

**CAUTION**: Improper grounding when connecting the product to associated equipment can result in a risk of electric shock. This product is equipped with a USB cable for connecting the product to a desktop or notebook computer. Be sure your computer is properly grounded (earthed) before connecting the product to the computer. The power supply cord of a desktop or notebook computer has an equipment grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet which is properly installed and grounded in accordance with all local codes and ordinances.

## SAFETY PRECAUTIONS FOR BATTERY AND BATTERY CHARGER

• Use the correct external power source
A product should be operated only from the type of power source indicated on the electrical ratings label. If you are not sure of the type of power source required, consult your authorized service provider or local power company. For a product that operates from battery power or other sources, refer to the operating instructions that are included with the product.

• Handle battery packs carefully
This product contains a Li-ion Polymer battery. There is a risk of fire and burns if the battery is handled improperly. Do not attempt to open or service the battery. Do not disassemble, crush, puncture, short external contacts or circuits, dispose of in fire or water, or expose a battery to temperatures higher than 50˚C (122˚F).

**WARNING**: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED BY AN INCOMPATIBLE TYPE. TO REDUCE RISK OF FIRE OR BURNS, DO NOT DISASSEMBLE, CRUSH, PUNCTURE, SHORT EXTERNAL CONTACTS, EXPOSE TO TEMPERATURE ABOVE 50˚C (122˚F), OR DISPOSE OF IN FIRE OR WATER. REPLACE ONLY WITH SPECIFIED BATTERIES. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

RECYCLE OR DISPOSE OF USED BATTERIES ACCORDING TO THE LOCAL REGULATIONS OR REFERENCE GUIDE SUPPLIED WITH YOUR PRODUCT.

# SAFETY PRECAUTIONS FOR DIRECT SUNLIGHT

Keep this product away from excessive moisture and extreme temperatures. Do not leave the product or its battery inside a vehicle or in places where the temperature may exceed 50°C (122°F), such as on a car dashboard, window sill, or behind a glass that is exposed to direct sunlight or strong ultraviolet light for extended periods of time. This may damage the product, overheat the battery, or pose a risk to the vehicle.

# SAFETY PRECAUTIONS FOR ACOUSTIC PRESSURE

**CAUTION**: Excessive sound pressure from earphones, headphones, or the device's near-ear speaker or prolonged listening at high volume levels can cause permanent hearing loss

# SAFETY PRECAUTIONS FOR VISION

The backlight LED is 1M rated and should not be disassembled from the micro-display assembly and viewed using optical instruments. Vision damage can result.

The backlight LED is diffused to provide even disbursement of light for the full viewable area of the micro-display.  This results in a significant loss of strength. The light is further reduced as it passes through layers of optical controllers.

**WARNING**: LASER RADIATION, DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS, CLASS 1M LASER PRODUCT.

# SAFETY PRECAUTIONS FOR REGULAR AND PROLONGED USE.

STOP USING THIS DEVICE OR ITS EYEPIECE IMMEDIATELY IF EXPERIENCING HEADACHES, VERTIGO, DIZZINESS OR NAUSEA.

DO NOT USE THE EYEPIECE FOR EXTENDED PERIODS OF TIME OR IF FEELING DROWSY OR TIRED.

# SAFETY IN AIRCRAFTS

Due to the possible interference caused by this product to an aircraft's navigation system and its communications network, using this device's Bluetooth and WiFi functions on board an airplane is against the law in most countries.

# ENVIRONMENT RESTRICTIONS

Do not use this product in gas stations, fuel depots, chemical plants or where blasting operations are in progress, or in potentially explosive atmospheres such as fuelling areas, fuel storehouses, below deck on boats, fuel or chemical transfer or storage facilities, and areas where the air contains chemicals or particles, such as grain, dust, or metal powders.

Please be aware that sparks in such areas could cause an explosion or fire resulting in bodily injury or even death.

# EXPLOSIVE ATMOSPHERES

When in any area with a potentially explosive atmosphere or where flammable materials exist, the product should be turned off and the user should obey all signs and instructions. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death. Users are advised not to use the equipment at refueling points such as service or gas stations, and are reminded of the need to observe restrictions on the use of radio equipment in fuel depots, chemical plants, or where blasting operations are in progress. Areas with a potentially explosive atmosphere are often, but not always, clearly marked. These include fueling areas, below deck on boats, fuel or chemical transfer or storage facilities, and areas where the air contains chemicals or particles, such as grain, dust, or metal powders.

# ROAD SAFETY

Vehicle drivers in motion are not permitted to use telephony services with handheld devices in most regions, except in the case of emergency. In some countries, using hands-free devices as an alternative is allowed. However, it is never permitted to operate a vehicle while using a head worn display.

# INTERFERENCE WITH MEDICAL EQUIPMENT FUNCTIONS

This product may cause medical equipment to malfunction. The use of this device is forbidden in most hospitals and medical clinics.

# GENERAL PRECAUTIONS

**• Heed service markings**
Except as explained elsewhere in the Operating or Service documentation, do not service any product yourself. Service needed on components inside these compartments should be done by an authorized service technician or provider.

**• Damage requiring service**
Unplug the product from the electrical outlet and refer servicing to an authorized service technician or provider under the following conditions:
• Liquid has been spilled or an object has fallen into the product.
• The product has been exposed to rain or water.
• The product has been dropped or damaged.
• There are noticeable signs of overheating.
• The product housing is broken
• The product does not operate normally when you follow the operating instructions.

• **Rugged Handling**
• Never pick up the Golden-I by the boom or eyepiece
• Do not through or drop
• Do not subject the product to shock and vibration
• Do not operate outside the products specified temperature range
• Do not expose the product to environments with chemicals, chemical vapors, gasses, corrosive elements, dust and moisture


• **Avoid hot areas**
The product should be placed away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

• **Avoid wet areas**
Never use the product in a wet location.

• **Avoid pushing objects into product**
Never push objects of any kind into cabinet slots or other openings in the product. Slots and openings are provided for ventilation. These openings must not be blocked or covered.

• **Mounting Accessories**
Do not use the product on an unstable table, cart, stand, tripod, or bracket. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

• **Avoid unstable mounting**
Do not place the product with an unstable base.

• **Use product with approved equipment**
This product should be used only with personal computers and options identified as suitable for use with your equipment.

• **Adjust the volume**
Turn down the volume before using headphones or other audio devices.

• **Cleaning**
Unplug the product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning, but NEVER use water to clean the LCD screen.


# WARRANTY

Demonstration Unit: This device in intended for evaluation and compatibility testing and development purposes only, by the original purchases, and should not be used for business purposes (other than evaluation and compatibility testing and development) or resold or transferred. This device is provided without warranty and all warranties, express or implied, are expressly disclaimed .


# COPYRIGHT INFORMATION

Golden-i, Golden-i OS are registered trademarks of Kopin Corporation in the United States and/or other countries

Microsoft, Windows, WindowsCE, ActiveSync are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

# PATENT INFORMATION

Golden-i® is protected by one or more of the following patents and other U.S. and foreign patents pending:

US 6,043,800, US 6,072,445, US 6,140,980, US 6,424,321, US 6,452,572, US 7,075,501, US 7,310,072.

# Contents

# Chapter 1: Getting Started

## Getting to Know Your Device

Golden-i is a head-worn computing device design to give the user hands-free access to any information anywhere in the world. Golden-i is driven primarily by voice input, augmented with head-gestures where appropriate.

The Golden-i device is fully programmable and customizable, but does come with built-in software for basic command and control.

The purpose of this user guide is to explain the basic functionality of the Golden-i device and the operation of the built-in software.
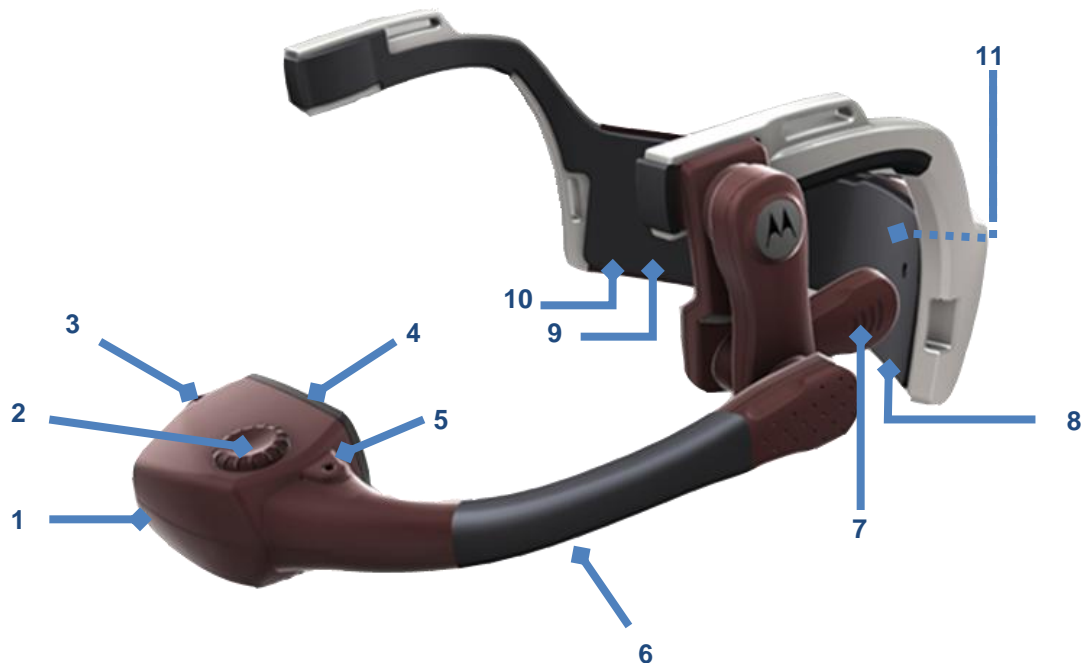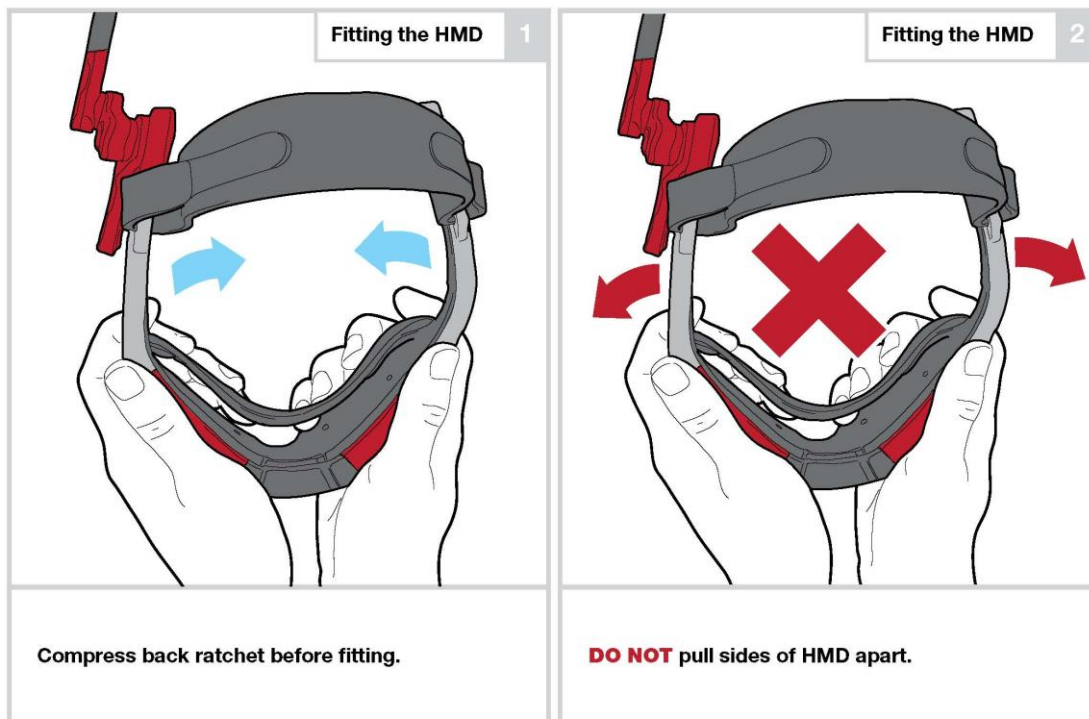


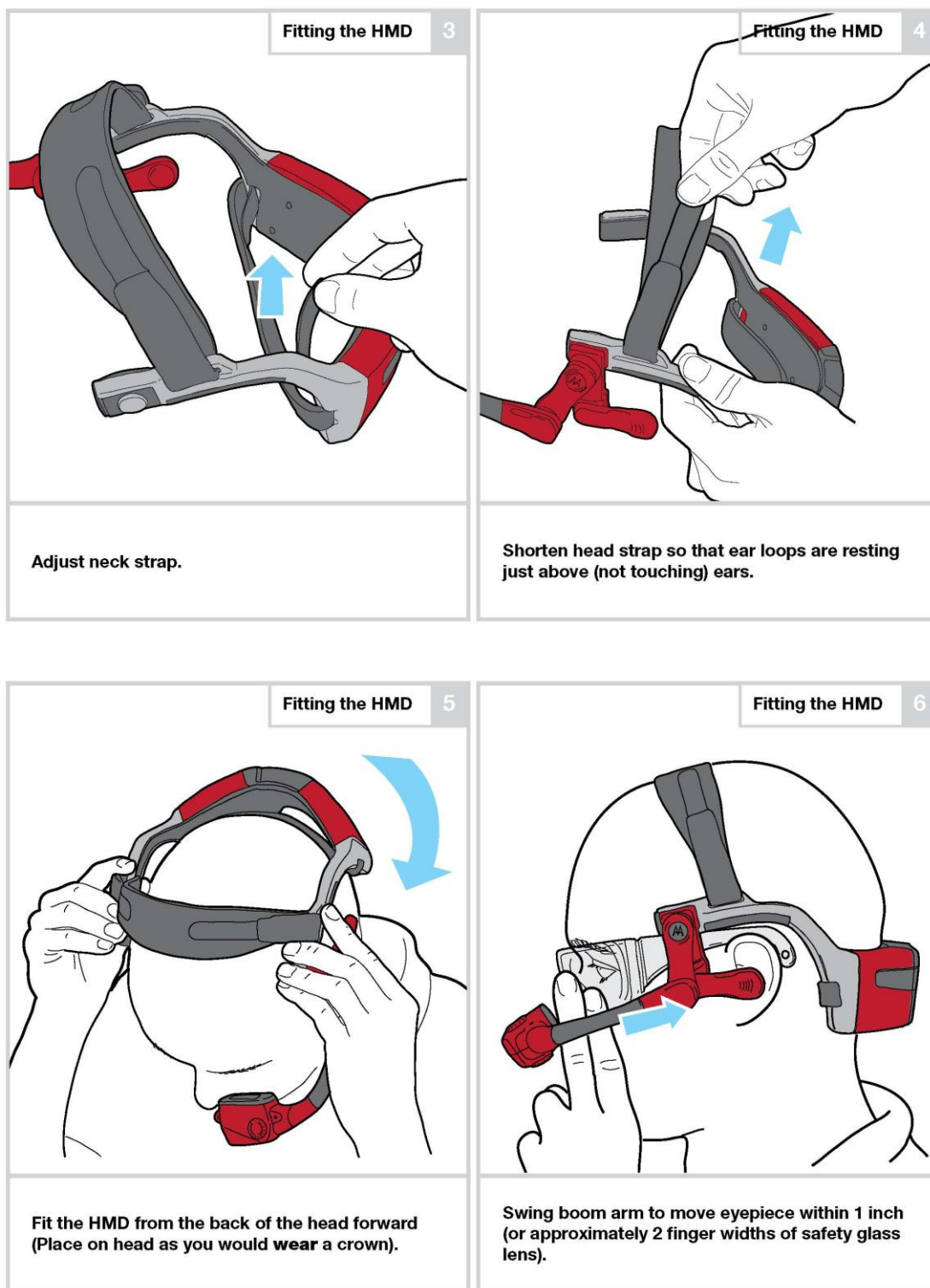*Note: Shown without head and neck support straps*

| No. | Item | Function |
|-----|------|----------|
| 1 | Optic Pod | Houses the display, microphones and focus adjust mechanism |
| 2 | Focus Adjust | The adjustment wheel for focus setting |
| 3 | Microphone 1 | One of two microphones in the optic pod |
| 4 | Near-Eye Display | The near-eye SVGA display (800x600 color pixels) |
| 5 | Microphone 2 | The second of two microphones in the optic pod |
| 6 | Boom Arm | Left/Right Interchangeable arm connecting display pod to body |
| 7 | Near-Ear Speaker | Over-the-ear speaker on swivel |
| 8 | On / Off Switch | Main power switch |
| 9 | Micro SD Slot | Access for micro-SD card |
| 10 | USB Port | Mini-A USB Port (for keyboard, mouse and ActiveSync) |
| 11 | Battery Door | Houses rechargeable battery |

## Fitting Golden-i

Golden-i is worn over the head so that the main body of the unit fits behind the base of the head, with the strap sitting on top of the head.

The strap and main body are adjustable: moving the strap in or out, and collapsing the hinged main body inwards will result in a snug fit that is comfortable to wear without moving when the head is moved.



Fitting the HMD 1 — Compress back ratchet before fitting.

Fitting the HMD 2 — DO NOT pull sides of HMD apart.

Fitting the HMD    3

Adjust neck strap.

Fitting the HMD    4

Shorten head strap so that ear loops are resting just above (not touching) ears.

Fitting the HMD    5

Fit the HMD from the back of the head forward (Place on head as you would **wear** a crown).

Fitting the HMD    6

Swing boom arm to move eyepiece within 1 inch (or approximately 2 finger widths of safety glass lens).

## Adjusting the Golden-i Display

Once the main unit is situated on the head, the display pod can be moved to lie about 1-2 inches from the eye, but **below the line of sight**. It is likely you will need to angle the display pod up a little to see it correctly.

There is a focus-adjust wheel on the display pod that can be rotated to bring the screen in and out of focus. When set up correctly the screen should appear bright and crisp, allowing you to read the smallest of text.

Note: If you normally wear eye-glasses to operate a computer, please continue to wear the same glasses with Golden-i. Golden-i is designed to work equally well with or without eye-glasses.
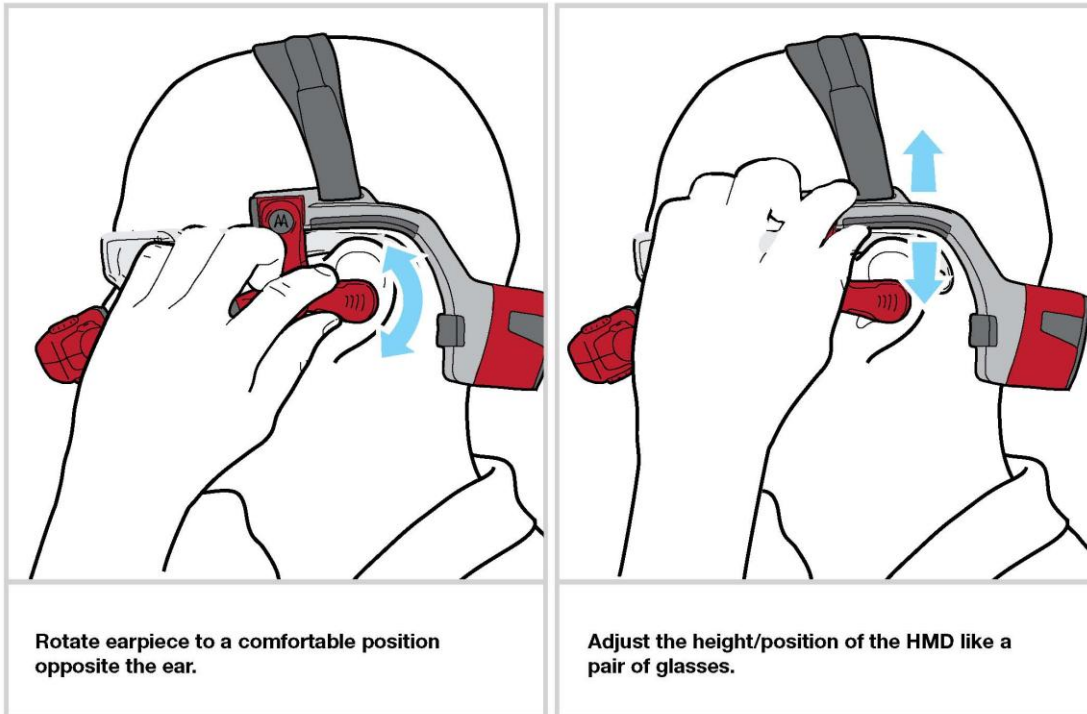
Note: **The optic pod should be positioned just below your DOMINANT EYE.** If your dominant eye is left, the optic pod should be just below your left eye. If your dominant eye is right, the optic pod should be just below your right eye. The Golden-i unit can be switched from left-eye to right-eye: please see instructions in the Appendix of this manual about moving the optic pod from left to right.



Adjust eyepiece to rest below line of sight.

DO NOT obstruct line of sight with eyepiece.
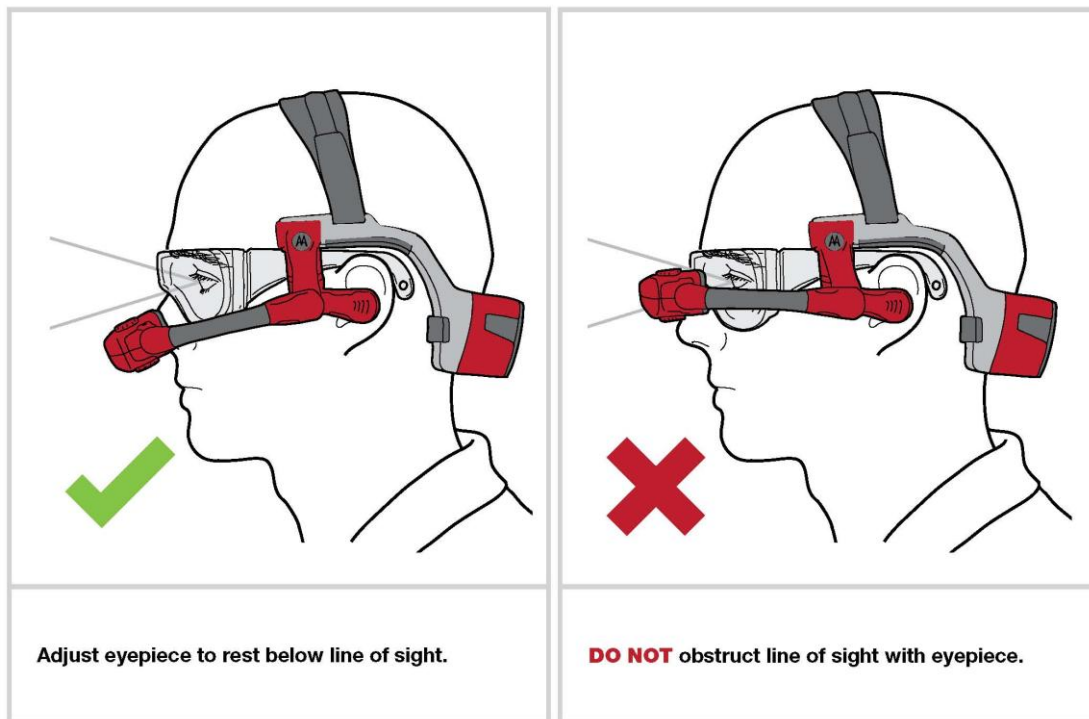
# Final Adjustments

Once the optic pod is correctly adjusted and focused, allowing you to clearly see the screen, the last adjustment is the speaker. This is the small earring-like piece of plastic hanging around one ear. The speaker can be adjusted so that is sits over one ear, so as to provide you audible feedback without blocking out other sounds.
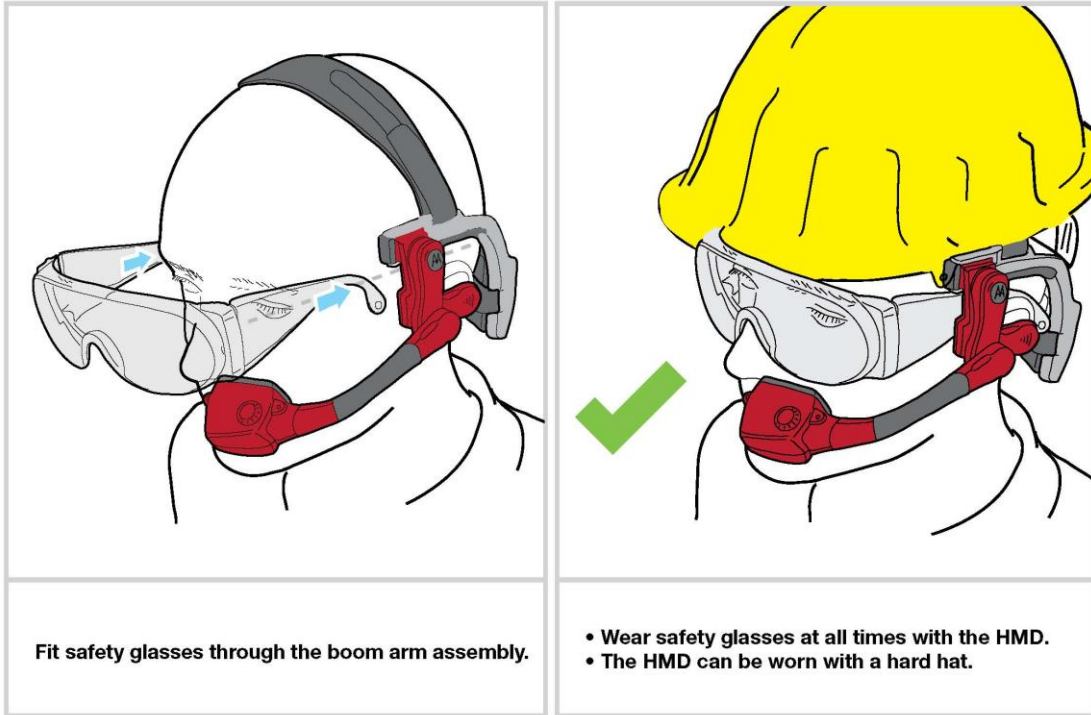
Lastly it is sometimes necessary to adjust the whole unit on the head either left or right, in the same way eye-glasses are shifted about. Typically this is done when a portion of the screen is not visible on the left or right side – simply shifting the whole unit left or right around the head will bring the entire display into view.



Rotate earpiece to a comfortable position opposite the ear.

Adjust the height/position of the HMD like a pair of glasses.

# Fitting with Safety Equipment

Golden-i is designed to be worn with or without safety equipment.

Safety goggles can be accommodated easily, as can wearing a hard-hard on top of the unit.



Fit safety glasses through the boom arm assembly.

• Wear safety glasses at all times with the HMD.
• The HMD can be worn with a hard hat.

# Battery Exchange

The Golden-i rechargeable battery will last anywhere from 1-4 hours depending on use.

The battery is rechargeable, but must be taken out for recharging using the separate charging unit.
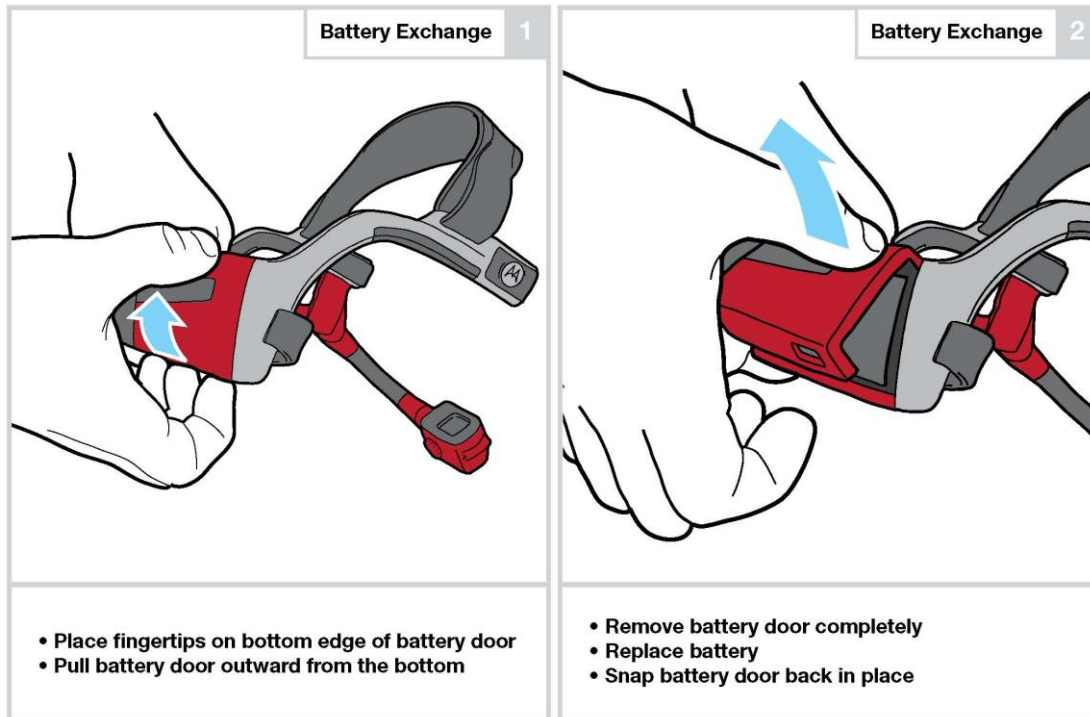


Note: To prevent damage, always ensure the power switch is in the OFF position before opening the battery compartment or installing the battery.

# Chapter 2: Using Golden-i

## Booting the Device

Golden-i is started by turning on the On/Off switch located underneath the main headset.

Initially Golden-i will take approximately 30 seconds to boot-up, during which time the following screen is displayed
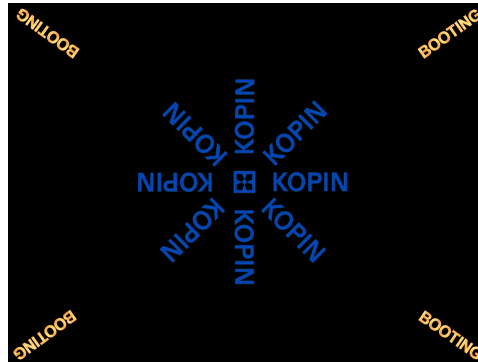


## The Golden-i Shell Application

The Golden-i Shell Application is fully contained on the microSD card inserted into the base of the Golden-i unit. This disk contains all of the demo application software and will run automatically once Golden-i has booted up.

The main screen of the Golden-i Shell is as follows:
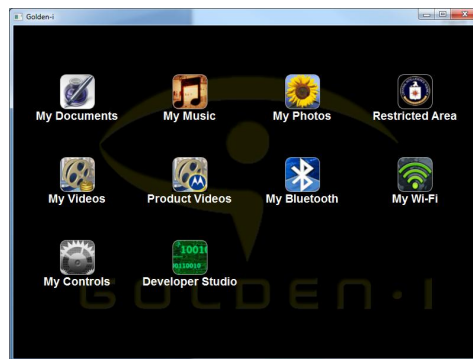


This main screen is also known as the '*home screen'* or the '*My Programs*' screen, a term that will become more apparent as we learn more about this application.

On the home screen is a list of icons, each one with a label underneath it. These icons represent application modules that can be selected to provide specific data or solutions.

Application modules can be added and removed from Golden-i based on user preferences. Your home screen may contain a different set of icons as the example.

The primary way to control Golden-i is through voice recognition.

The commands available to the user are the names of the icons on the screen. For example, if the user wants to select the *My Photos* application module, the user just needs to speak the text of icon label, i.e. "My Photos".



This will cause Golden-i to respond by first displaying the recognized phrase in the center of the screen, followed instantly by an acknowledgment sound in the ear-piece.

After this the screen will change as the application switches from the home screen to the selected application module.



*Golden-i acknowledges the spoken phrase by displaying it on the screen and then changing application screen*

# Returning to the Home Screen

At any time in Golden-i the user can return to the home screen by speaking the command "**My Programs**".



*Say "My Programs" to return to the home screen*

# Hidden Commands and Help

Sometimes common commands are hidden from the screen: the premise being that once you've learned which commands to use you do not need to have them take up valuable screen space all the time.

To bring up a list of hidden commands available from any screen, simply issue the command "**Golden-i Help**"
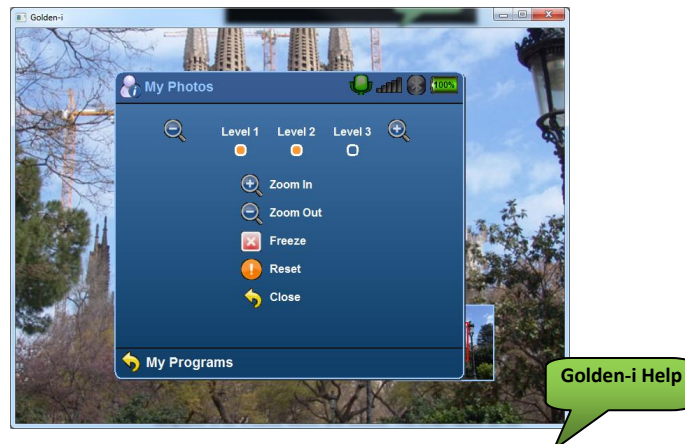


*Say "Golden-i Help" to display a list of available commands*

## Golden-i Version Numbers

Issuing the command "Golden-i Help" from the home screen will display the current system version numbers.



## Battery Status and Connectivity Icons

Whenever the Golden-i Help screen is displayed, the top of the Help window displays a list of icons and application information. These include the name of the current application module, the status of the microphones, the state of the WiFi system, the Bluetooth state and the current battery level.



The Microphone State icon indicates if any sound is being picked up. The icon will change brightness from dark green to light green as sounds are picked up.
The WiFi State icon will remain grey is the WiFi is disabled. When in use the icon will be green.

The Bluetooth State icon will remain grey when the Bluetooth is not in use. When in use the icon will be blue.

The Battery Life Indicator will run from 100% (fully charged) to 0% (empty). When the battery life is below 10% warning messages will flash on the screen.

## Dialog Windows and Auto-Close

Occasionally Golden-i will display certain information inside a window that sits on top of an application module. This window is known as a Dialog Window and is used to direct the user to a set of options while another application is still running. A common example of a Dialog Window is the Speaker Volume window that allows the volume of the speaker to be adjusted.
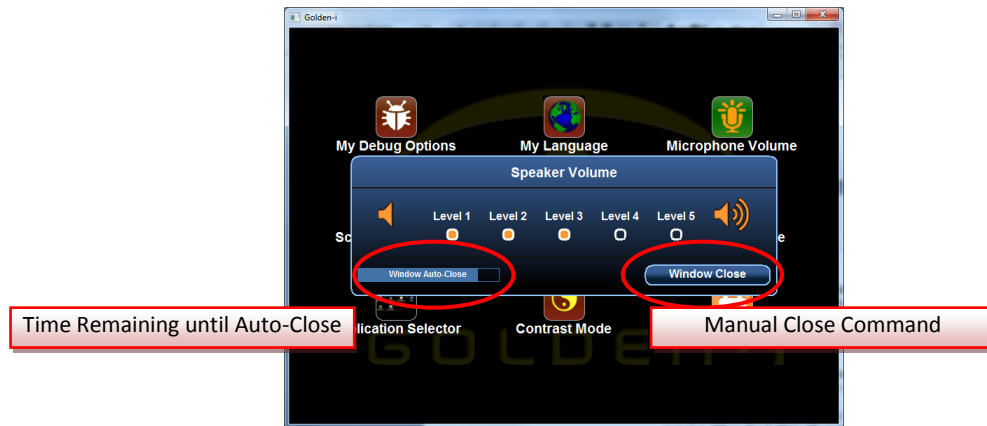


When a dialog window is showing, the window must be closed before the underlying application can continue to run.

While a dialog window is showing, the commands "Golden-i Help" and "My Programs" will not work.

There are two ways to close a dialog window: the first way is to do nothing. Each dialog window will automatically close after a number of seconds. The time until auto-close is show in the bottom left of the window, labeled 'Window Auto Close'.

The second way to close the window is to issue the command "Window Close".

# Chapter 3: Application Modules

The Golden-i shell application allows users to add and remove application modules at will.

The default configuration of Golden-i ships with a few example modules. The instructions for these are listed in this section.

Also found on every Golden-i device is the following set of modules:

- **Control Panels**: The Control Panel modules allow basic system configuration such as speaker volume, screen brightness etc..

- **My Bluetooth**: The Bluetooth Zone contains Bluetooth device discovery and connection applications.

- **My Wi-Fi**: The WiFi Zone contains applications for configuring and using the WiFi system built into Golden-i

- **Developer Studio**: Contains demonstration applications and debugging options useful for developers.

All of these modules have their own chapter later in this user guide.

The following sections list the other modules shipped with Golden-i.

# My Photos

The My Photos application is used to display a list of photographs and allow the user to navigate around them one at a time.



*My Photos main screen*

The first screen in the My Photos application shows a list of thumbnail photos, along with a speech label.

Speaking the text of the speech label ("My Photo 3") will cause the particular photograph to be opened up into full screen mode. Once opened up the head-tracker is automatically activated to allow head-movement to navigate around a document.

Options available in this mode are:
- *Close*: Close the photograph and return to the thumbnails
- My Programs: Close the photograph and return to the Home Screen
- Zoom In: Zoom in a level (Only 3 levels of zoom in this demo)
- Zoom Out: Zoom out a level (Only 3 levels of zoon in this demo)
- Level 1, Level 2 or Level 3: Specify the zoom level to use
- Freeze: Stop the head-tracker movement and lock the photo
- Reset: Re-center the photograph
- Control Photo: Allow head-tracker to move the photo.
- My Photo 3, My Photo 9: Jump to other photos in thumbnail list

The photographs are stored on the microSD card inside the folder

- /Goldeni/App-Data/My Photos

New photographs can be dropped into place and the photo set customized. Images can be in JPEG or GIF format and ideally should be scaled to 800 x 600 pixels. Larger images will be scaled down automatically but will take longer to display because of this extra operation.

Images should also have a pre-generated thumbnail with them. These are located in the "thumbnails" sub-directory and should be approx. 100 x 60 pixels in size, and always GIF format.

# My Videos

The My Videos application is used to display a list of video clips and allow the user to select and play them one at a time.



*My Videos main screen*

The first screen in the My Videos application shows a list of thumbnail video clips, along with a speech label.

Speaking the text of the speech label ("Play Video 3") will cause the particular video clip to be opened up into full screen mode and played.

Options available in this mode are:
- Video Pause: Pause video playback
- Video Resume: Resume video playback
- Video Stop: Stop video playback and return to thumbnails
- My Programs: Stop video playback and return to Home Screen

The video clips are stored on the microSD card inside the folder

- /Goldeni/App-Data/My Videos

Clips can be in the following formats: WMV10, H.264, MPEG4

Video Clips will automatically play for a number of seconds. Once this time has elapsed the video clip will stop and the screen will return to the thumbnails list. The actual time for playback is stored in the Golden-i Preferences file (see Appendix A: Preferences). The preference keys are as follows:

```
[My Videos]
Playtime = 60
```

Playtime measures the playback time in seconds. The default value is 60 seconds.

## My Product Videos

The My Product Videos application is used to display a list of Motorola-related video clips and allow the user to select and play them one at a time.



*My Product Videos main screen*

The first screen in the My Product Videos application shows a list of thumbnail video clips, along with a speech label.

Speaking the text of the speech label ("Play Video 3") will cause the particular video clip to be opened up into full screen mode and played.

Options available in this mode are:
- *Video Pause*: Pause video playback
- Video Resume: Resume video playback
- Video Stop: Stop video playback and return to thumbnails
- My Programs: Stop video playback and return to Home Screen

The video clips are stored on the micro-SD card inside the folder

- /Goldeni/App-Data/My Motorola Videos

Clips can be in the following formats: WMV10, H.264, MPEG4

Video Clips will automatically play for a number of seconds. Once this time has elapsed the video clip will stop and the screen will return to the thumbnails list. The actual time for playback is stored in the Golden-i Preferences file (see Appendix A: Preferences). The preference keys are as follows:
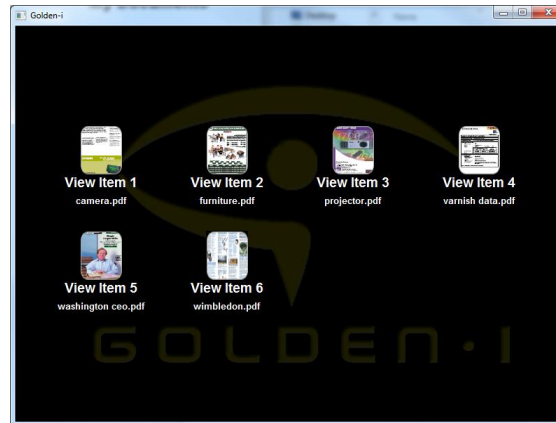
```
[My Motorola Videos]
Playtime = 60
```

Playtime measures the playback time in seconds. The default value is 60 seconds.

# My Documents

The My Documents application is used to display a list of PDF documents and allow the user to navigate around them one at a time.



*My Documents main screen*

The first screen in the My Documents application shows a list of thumbnail documents, along with a speech label.

Speaking the text of the speech label ("My Document 3") will cause the particular document to be opened up into full screen mode. Once opened up the head-tracker is automatically activated to allow head-movement to navigate around a document.

Options available in this mode are:
- Close: Close the document and return to the thumbnails
- My Programs: Close the document and return to the Home Screen
- Zoom In: Zoom in a level (Only 3 levels of zoom in this demo)
- Zoom Out: Zoom out a level (Only 3 levels of zoon in this demo)
- Level 1, Level 2 or Level 3: Specify the zoom level to use
- Freeze: Stop the head-tracker movement and lock the document
- Reset: Re-center the document
- Control Document: Allow head-tracker to move the document.
- Next Page, Previous Page: Switch pages in multi-page documents.
- My Document 3, My Document 9: Jump to other documents in thumbnail list

The documents are stored on the micro-SD card inside the folder

- /Goldeni/App-Data/My Documents

New documents can be dropped into place and the photo set customized. Documents should be in PDF format.

Documents should also have a pre-generated thumbnail image with them. These are located in the "thumbnails" sub-directory and should be approx. 100 x 60 pixels in size, and always GIF format.

# My Music

The My Music application is used to display a list of music files and allow the user to select and play them one at a time.



*My Music main screen*

The first screen in the My Music application shows a list of thumbnail audio tracks, along with a speech label.

Speaking the text of the speech label ("Play Track 2") will cause the particular audio track to start playing.  Simple controls will appear at the bottom of the screen to pause and stop this playback.

Options available in this mode are:
- *Music Pause*: Pause the audio playback
- Music Stop: Stop the audio playback
- My Programs: Go to the Home Screen: Note audio playback will continue

Once an audio track has commenced it will continue playing until it either finishes naturally or the user has issued a Music Stop command. This means that other Golden-i applications can be browsed while music is still playing.

To stop the audio playback the user must navigate back to the My Music application and then issue the Music Stop command.

The audio tracks are stored on the micro-SD card inside the folder

- /Goldeni/App-Data/My Music

New tracks can be dropped into place and the audio track list customized. Tracks should be in WMA format.

Tracks should also have a pre-generated thumbnail image with them. These are located in the "thumbnails" sub-directory and should be approx. 100 x 60 pixels in size, and always GIF format.

# Restricted Area

The Restricted Area application is simply a bit of fun!
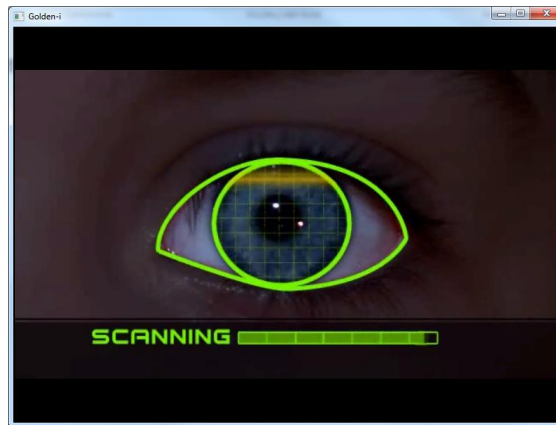


*Restricted Area main screen*

Selecting Restricted Area causes a short video clip to be played back, depicting an iris-scanning mechanism. The video is intended to amaze users into thinking Golden-i has iris-scanning capability.

It usually generates a few 'wows' and 'laughs'!

Once the clip has finished playing the user will be taken back to the Home Screen.
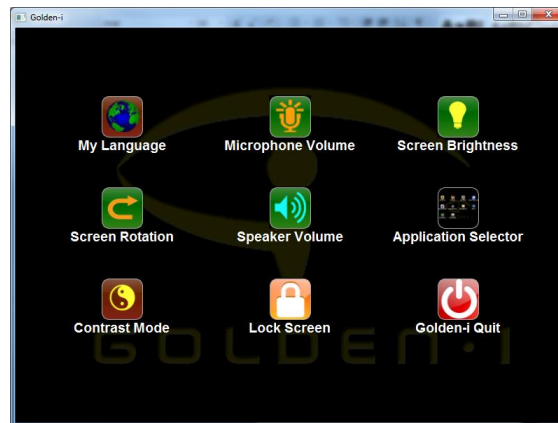
# Chapter 4: Control Panel Modules

The Control Panel Modules are used to control how Golden-i works and affect its basic operation.

All of the Control Panel Modules are accessed from the Home Screen by issuing the command "**My Controls**".



*Selecting My Controls from the Home Screen causes the Control Panel Modules to display*



*Control Panel Modules*

# My Language

My Language dialog window allows the user to switch to a different language on-the-fly.



*My Language*

The available languages are shown on the screen and are selected simply by saying the language required.

Once a new language has been selected the on-screen labels will switch to the new language, as will the speech recognizer.

The user can either wait for the window to auto-close, or can issue the Window Close command (or language-equivalent). Once the window closes the user will be taken back to the Home Screen.

Note: **Golden-i always boots up into English mode**. This is useful to remember if you get stuck in a language you cannot read or speak.

# Microphone Volume

The Microphone Volume dialog window allows the user to vary the microphone gain and balance.
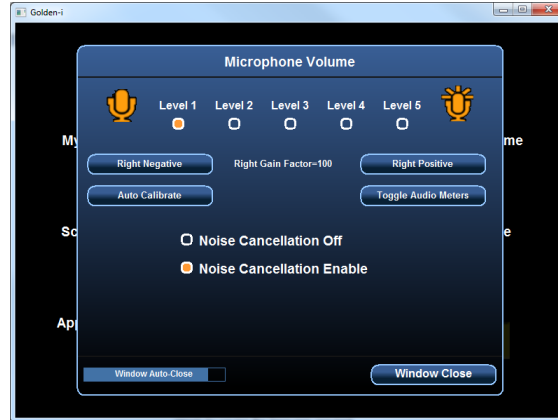


*Microphone Volume*

The microphone gain level determines how well the speech recognizer performs. **It is recommended that Level 1 always be selected**.

The Right Gain Factor is a factor applied to the right microphone input in an attempt to make the left and right inputs equal. It is recommended that this factor be determined using the Auto Calibrate option.

Noise Cancellation can be turned on or off**. It is recommended that Noise Cancellation is enabled.**

**Auto Calibrate**
In order for the noise cancellation to work optimally, both the left and right microphone inputs should record external noise at the same level. This is not always the case with new systems due to variances in the actual microphones themselves.

Thus any given Golden-i unit must be calibrated to auto-balance the microphones.

Selecting Auto Calibrate will test the microphones through a range of settings in order to find the Right Gain Factor that most closely balances the left and right channels.

To Auto-Calibrate, issue the 'Auto Calibrate' command and then subject Golden-i to loud noise (white or brown noise is preferable). If the noise source is a speaker, Golden-i should be at least 3 feet from the speaker and facing towards it.

During the calibration the user should not speak or make any noise. Calibration is all about the equal detection of noise from outside the Golden-i unit, and not about sound coming from inside the unit.

For the user's convenience the left and right channel levels can be monitored using the 'Toggle Audio Meters' button. This will cause a debug window to appear on the bottom left of the screen, showing the audio channel levels.
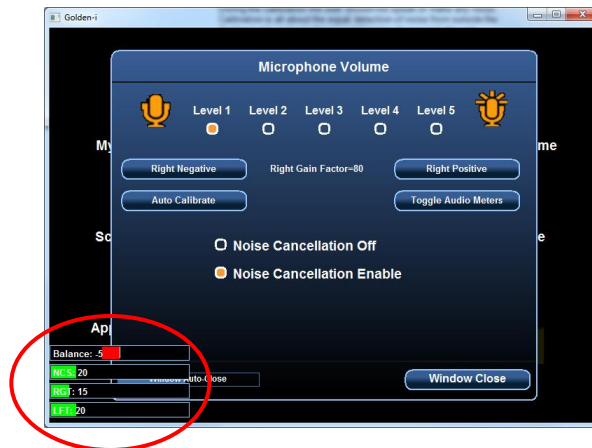
*Microphone Level Meters can help in Calibration*

After calibration both the left and right channels should show the same levels when exposed to external noise, and the Balance meter should show little movement in any direction.

If calibration was successful, Noise Cancellation will be very effective, allowing commands to be issued very quietly even in loud environments.

If Noise Cancellation is turned off, the calibration settings will have no effect.

# Screen Brightness

The Screen Brightness dialog window allows the user to vary the brightness of the screen.



*Screen Brightness*

The brightness levels range from Level 1 to Level 5, where Level 1 is the darkest and Level 5 is the brightest.

# Screen Rotation

The Screen Rotation dialog window allows the user to rotate the screen display though 180 degrees.



*Screen Rotation*

By default the screen will come up in the correct orientation for a left-dominant eye system.

However if the Golden-i unit is converted to be a right-dominant eye system then the display will appear to be upside down. If this is the case, this control panel should be used to flip the display around.

# Speaker Volume

The Speaker Volume dialog window allows the user to vary the audio output of the speaker.



*Speaker Output*

The speaker volume levels range from Level 1 to Level 5, where Level 1 is the quietest and Level 5 is the loudest.

# Application Selector

The Application Selector window displays a list of all currently installed application modules and allows them to be selectively hidden from view.



*Application Selector*

The application selector window displays a list of all installed application modules.

Each module can be toggle between a visible and hidden state. When a module is deemed hidden, a red 'X' will appear next to its icon and it will no longer be visible from the Home Page or sub-screens.

This functionality is useful when hiding applications from certain user groups (i.e. public demos where private applications should be hidden).

Application states can be toggled by simply stating the Application Name as listed under the icons.
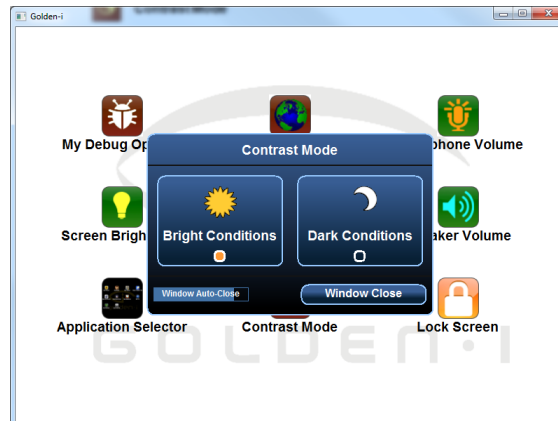
# Contrast Mode

The Contrast Mode dialog window allows the user to vary the screen display of Golden-i based on current lighting conditions.
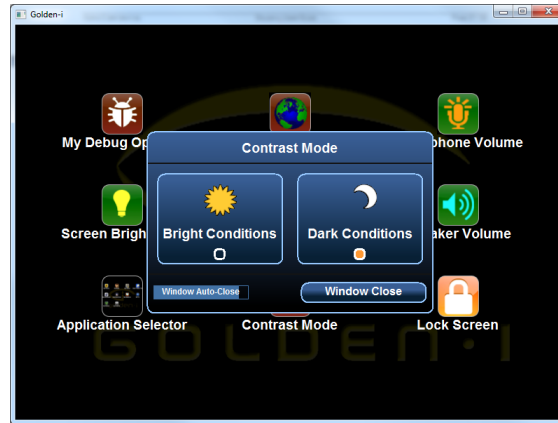


*Contrast Mode – Dark Conditions*

When using Golden-i indoors or in dark conditions it is usually preferable to select the 'Dark Conditions' mode. This is effectively a low-contrast mode, where all icons appear on a black background.

However if using Golden-i outdoors or in bright conditions, the contrast mode should be switched to Bright Conditions. In this mode the icons appear on a white background and will be easier to read in the bright conditions.



*Contrast Mode – Bright Conditions*

# Lock Screen

The Lock Screen mode simply displays an empty dialog window .The only acceptable command is 'Window Close'.
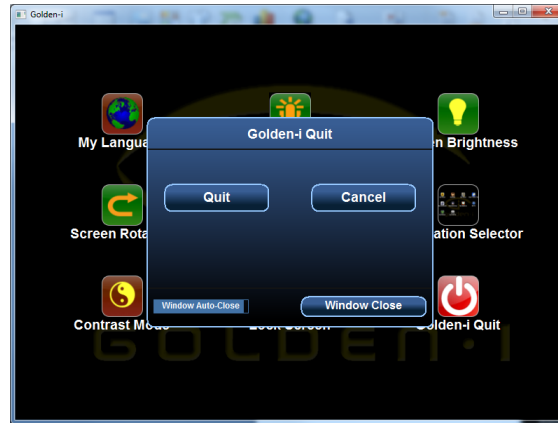


*Lock Screen*

This mode is designed to put Golden-i into a protected state where spoken commands will not trigger any unwanted behavior in Golden-i, for example when talking to a colleague.

The 'Window Close' command must be issued to escape from the Lock Screen mode.

# Golden-I Quit

The Quit option allows the Golden-I shell application to be exited, which will return the user to the standard Windows CE shell application on Golden-i.
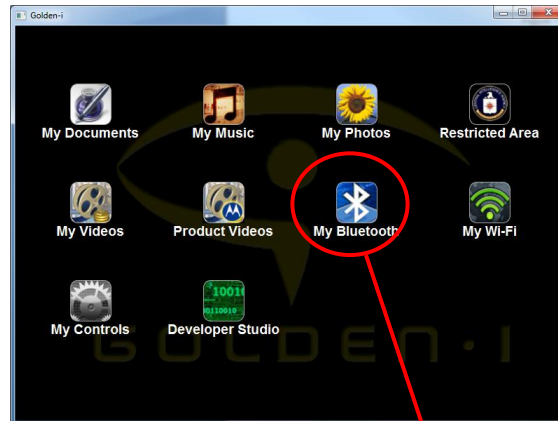


*Lock Screen*

Before Quitting, the user must confirm his/her choice.

# Chapter 5: My Bluetooth

The My Bluetooth Modules are used to control how Golden-i connects with external devices using the built in Bluetooth functionality.

All of the Bluetooth Modules are accessed from the Home Screen by issuing the command "**My Bluetooth**".



*Selecting My Bluetooth from the Home Screen causes the Bluetooth Modules to display*
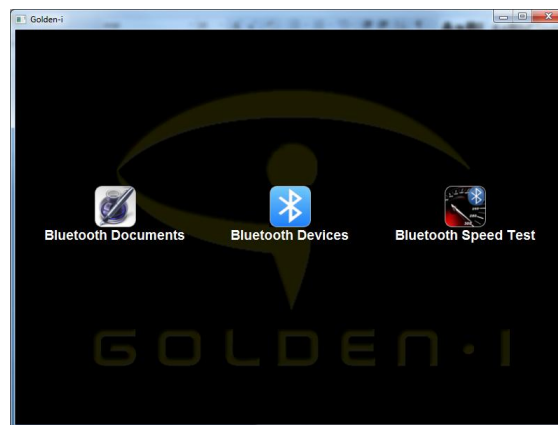


*Bluetooth Modules*
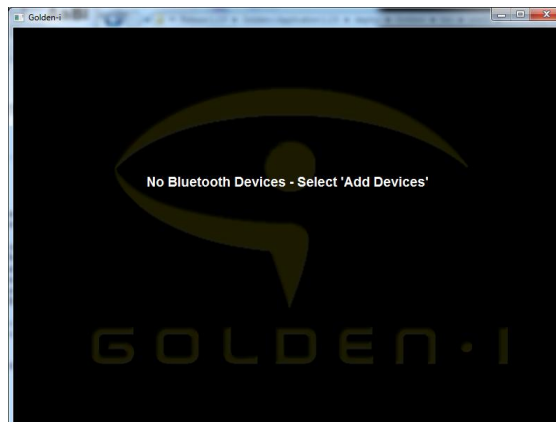
# Bluetooth Devices

Golden-i supports the use of many different types of Bluetooth device, in many different roles. For example:

- Bluetooth Mice, Keyboards and Joysticks can be used for user input control (Bluetooth HID profiles)
- Golden-i can pair up with cell-phones as a headset for audio control (Bluetooth Headset and Hands-Free Profiles)
- Golden-i can link up with remote PCs and Smart Phones to utilize their Internet connections (Bluetooth PAN)

*Note: As of the current software release, not all Bluetooth profiles are enabled.*

The Bluetooth Devices control panel is designed to manage these Bluetooth devices and the connections to them.

The first time Golden-i is used it will not know about any Bluetooth devices. Consequently the Bluetooth Devices control panel will not show any device icons. It will however show a message stating "No Bluetooth Devices" (see below).



*Bluetooth Control Panel, with no devices listed*

All Bluetooth devices must first be discovered before they can be used. This is achieved using the built-in device discovery mechanism.

To initiate device discovery, speak the phrase 'Add Devices'. This will cause the device discovery window to appear, as shown below.
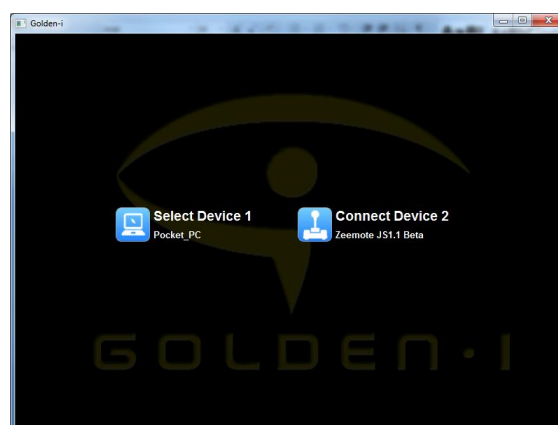
*Bluetooth Device Discovery*

While the device discovery window is visible Golden-i will repeatedly scan for available Bluetooth devices. Any devices that are found will be displayed with an icon on the screen.

Initially a device might be represented by its Bluetooth address, but shortly after appearing the address will be replaced by the name of the device.

*Note: In order for Golden-i to discover a device, the device itself must be in "Discoverable" mode. Devices handle this in different ways so please refer to the device's documentation for more details.*

When the user identifies the device to use, simply add it to the Bluetooth Device Control Panel by speaking the phrase 'Add Device 1' etc… This will close the discovery window and revert back to the Bluetooth Device Control Panel.

At this point the device is still not connected; its name and address have just been added to the list of preferred Bluetooth devices that Golden-i can manage.



*Bluetooth Control Panel, with devices listed*

To go ahead and connect to a device and begin using it, the user must now issue the command 'Connect Device 1'. To disconnect from a device the command 'Disconnect Device 2' is used.

**Bluetooth HID Devices**
In the case of Bluetooth HID devices (mice, keyboards etc…) a message will confirm if connection was successful or not. If the device was successfully connected, the input device should now be usable within Golden-i. i.e. a mouse can be used to move a cursor and select icons; a keyboard can be used for typing.

If a HID device is connected when Golden-i is shut off, Golden-i will automatically try to reconnect to the device the next time it boots up.

**Bluetooth SPP Devices**
Bluetooth SPP devices are those that will set up a high-speed data link with Golden-i for application specific roles.



*Bluetooth SPP Device selected as default data device*

Other Bluetooth modules will use this data link. In order to tell these other modules which device to use for data exchange, the user must select the device to use. This is done using the command 'Select Device 1'. Once selected a small yellow check mark will appear next to the device icon, indicating this device will be used for all subsequent Bluetooth data exchanges.


Options available in the Bluetooth Device Control Panel are:
- Add Devices: Show the discovery window and scan for new devices
- Clear All Devices: Clear the list of managed Bluetooth devices
- My Programs: Go to the Home Screen
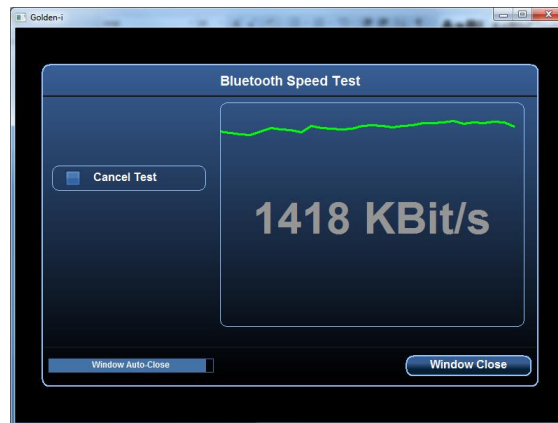
# Bluetooth Speed Test

The Bluetooth Speed Test module tests the connection speed between Golden-I and a device running special Golden-I application software.
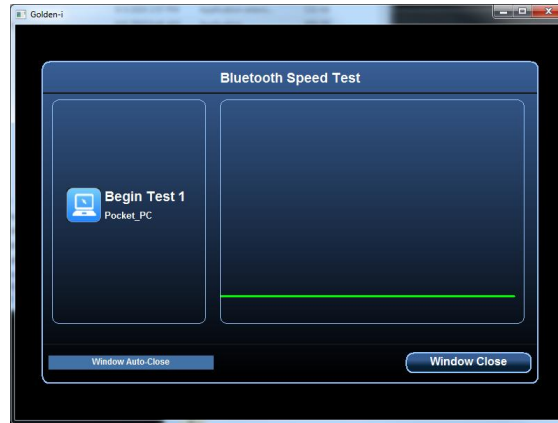


*Bluetooth Speed Test*

When the module starts up the left hand side of the window will display a list of all Bluetooth SPP devices found by the Bluetooth Devices module.
To test the speed of a specific module simply select the device by speaking the command "Begin Test 1" etc…



*Bluetooth Speed Test*

Golden-I will now perform a receive speed test between the device and Golden-i. i.e, the device will stream out data to Golden-I and it will measure the speed at which it can receive it.
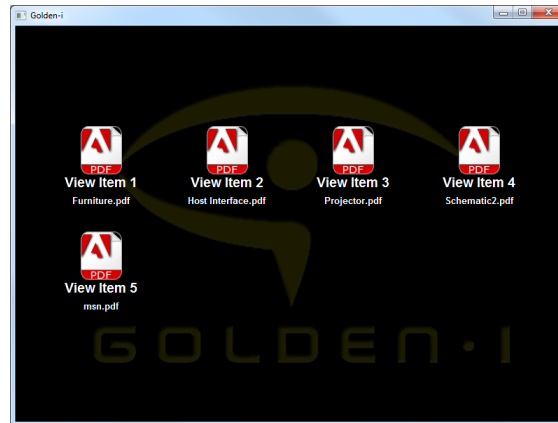
Note: In order for this to work special software must be running on the remote device. Currently there are two applications available for this, both downloadable from the Golden-I website:

- Windows 7 Desktops: Golden-I Remote Desktop Server
- Pocket PC (Motorola MC-75): Golden-I Document Manager

# Bluetooth Documents

The Bluetooth Documents command will start a module to demonstrate document exchange between Golden-I and the selected SPP device.



*Bluetooth Documents*

To use this application two requisites must be met:

1.  The remote device is running Golden-I application software to serve up the documents.

2.  The remote device has been discovered by the Bluetooth Devices module, and selected as the default data device.

Currently there are two applications available for remote document exchange, both downloadable from the Golden-I website:

*   Windows 7 Desktops: Golden-I Remote Desktop Server
*   Pocket PC (Motorola MC-75): Golden-I Document Manager

Once these two requisites have been made, selecting Bluetooth Documents will attempt to connect to the remote device over Bluetooth and return a list of documents present on the device.

These documents can be uploaded and viewed simply by issuing the command 'View Item 1' etc…

# Chapter 6: My Wi-Fi

The My Wi-Fi Modules are used to control how Golden-i connects with external devices using the built-in Wi-Fi system.

All of the My Wi-Fi Modules are accessed from the Home Screen by issuing the command "**My Wi-Fi**".



*Selecting My Wi-Fi from the Home Screen causes the Wi-Fi Modules to display*



*Wi-Fi Modules*

## Wireless Connection

Golden-i supports a WIFI connection to external devices. This WIFI connection uses the 802.11b and 802.11g protocols

The WIFI connection must be configured using a combination of the Wireless Connection Control Panel and the user preferences (See Appendix A: Preferences)

By default Golden-i will always start up with the WIFI connection in a disabled (off) state, primarily to reduce unnecessary battery consumption. Application modules that require the use of WIFI are responsible for enabling the connection before use.

### Configuring WIFI
Before using the WIFI connectivity, the following user preferences must be specified (See Appendix A: Preferences):


*[WIFI]*
*Preferred Network = Golden-i Wireless*
*Is Adhoc = false*
*DHCP = false*
*IP Address = 192.168.2.98*
*Subnet Mask = 255.255.255.0*
*Gateway = 192.168.2.1*
*DNS =*


The preferences are as follows:

**Preferred Network**
This is the SSID to connect to. Note that the network must be open and unencrypted in order for Golden-i to connect.

**Is Adhoc** (= true or false)
Golden-i can connect to Ad-Hoc networks or Infrastructure Mode networks, but must know ahead of time the type of network. Networks offered by Wireless Routers or Hubs are Infrastructure Mode networks and would require a 'false' setting of this preference.

**DHCP** (= true or false)
If Golden-i is to use a DHCP service offered by the router, set this preference to true. If the IP address is to be hard-coded, set the flag to false.

**IP Address**
If Golden-i is to have a hard-coded IP Address (DHCP=false), enter the IP Address here in the form: IP Address = 192.168.1.2

**Subnet Mask**
If Golden-i is to have a hard-coded IP Address (DHCP=false), enter the Subnet Mask here in the form: Subnet Mask = 255.255.255.0

**Gateway**

If Golden-i is to have a hard-coded IP Address (DHCP=false), enter the Gateway Address here in the form: Gateway = 192.168.1.1


**DNS**

If Golden-i is to have a hard-coded IP Address (DHCP=false), enter the primary DNS server address here in the form: DNS = 192.168.1.2


When the Wireless Connection Control Panel is started, Golden-i will automatically enable the WIFI driver and attempt to connect to a network using the settings in the preferences file.

If Golden-i is able to connect successfully, it will report network settings in the window, showing the network name and the current IP address of Golden-i.

If Golden-i is unable to connect to the network it will report an IP Address of 0.0.0.0.

Common reasons for bad connections may be:
- The WIFI network is not available or in range
- The WIFI network is encrypted. It must be open and unencrypted.
- The WIFI network type does not match the Golden-i setting. i.e. the network is Ad-Hoc and Golden-i is look for non Ad-Hoc network
- The hard-coded IP Address is not valid for the network
- Golden-i is attempting to use DHCP but it is not supported by the Wireless router



*Wireless Connection Control Panel*

### Selecting a Wi-Fi Network

While the IP Address settings must be changed manually using the preferences file, the network to connect to can be selected on-the-fly. This is done by selecting the 'Change Network' button. Doing this will show the list of currently available networks, and whether they are Ah-Hoc or not.
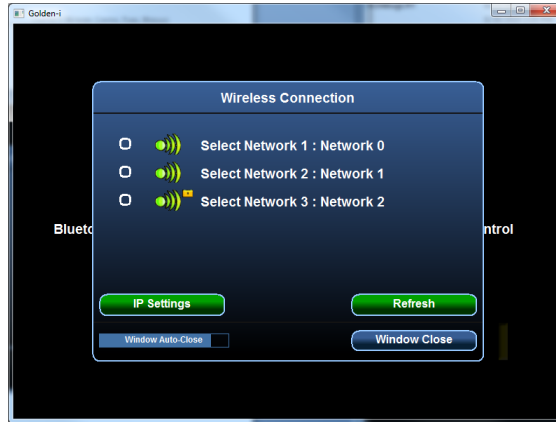


*Selecting a WIFI Network*

All available networks will be listed with the following icons:

| | |
|---|---|
|  | Open, unencrypted network. Golden-i CAN connect to this type of network |
|  | Private or encrypted network. Golden-i CANNOT connect to this type of network |
|  | Open, unencrypted Ad-Hoc network. Golden-i CAN connect to this type of network |
|  | Private or encrypted Ad-Hoc network. Golden-i CANNOT connect to this type of network |

*Network Types*

Selecting a network from the list will write the new network name and network type to the preferences file.

Once Golden-i has been correctly configured for network use, all other application modules will make use of these settings when network connectivity is required.

### WIFI Auto-Disable

Note: If the WIFI functionality is not used for 2 minutes or more, Golden-i will automatically close down any connections and disable the WIFI system.

# Chapter 7: Developer Studio

The Developer Studio Modules are used to for developer examples and to offer developer debugging options.

All of the Developer Studio Modules are accessed from the Home Screen by issuing the command "**Developer Studio**".
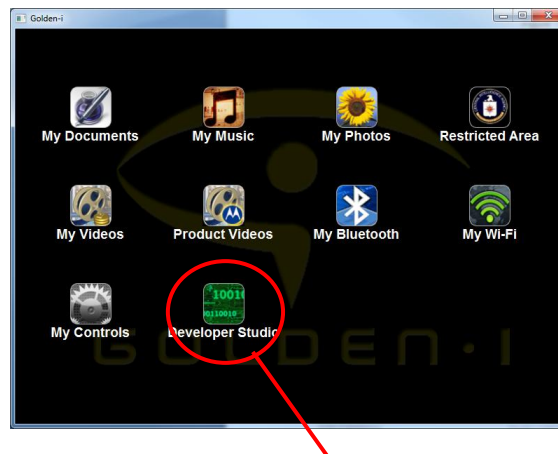


*Selecting Developer Studio from the Home Screen causes the Developer Studio Modules to display*
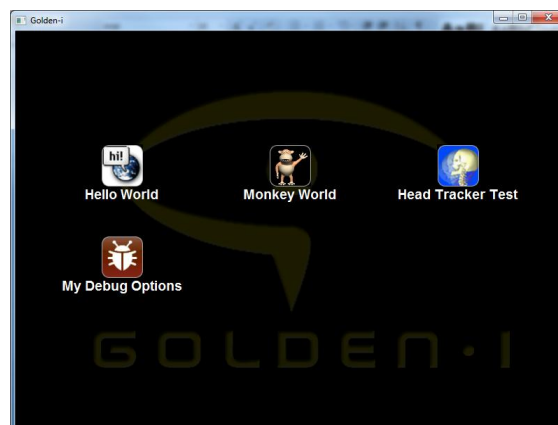


*Developer Studio Modules*

**For details on the Hello World and Monkey World modules please see the Golden-I Developers Guide.**

# My Debug Options

My Debug Options offers the user a list of different options for debugging Golden-i software.



*My Debug Options*

The following options are available:

**Debug Window**
Toggle on or off a small debug window on the top left of the screen. The window shows memory usage, up-time and repaint timing results.

**Speech Debug Window**
Toggle on and off a small debug window on the bottom right of the screen. The window shows text messages from the speech recognition engine.

**Speech Level Window**
Toggle on and off a small debug window on the bottom left of the screen. The window shows the audio meters for the microphone input, showing left and right raw input, Noise Cancellation levels and the balance between left and right microphones.

**Console Window Off**
**Small Console Window**
**Large Console Window**
Hide or display a console window on the top right of the screen. The console window is a general purpose text logging window than any application module can use (see programmers guide for information).

**Generate Localization Report**
This is a system utility to scan each and every module and write a single language localization report.

The localization report is always written to microSD card at the following location:

/Goldeni/sys-data/temp/localization report.txt

The report shows the different language support for every speech command.

# Head Tracker Test

The Head Tracker Test application is used to test the head-tracking capability of Golden-i.
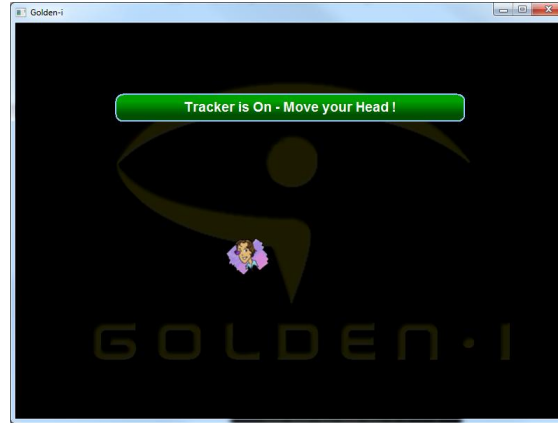


*Head Tracker Test main screen*

The main screen shows a simple instruction label and a floating icon below it.

As the user moves his head, the icon will move accordingly.

This is just a simple example of the 6-axis linear accelerometer and gyroscopes in action that together make up the head-tracking capability of Golden-i.

Options available in this mode are:
- *Freeze*: Stop the head-tracker
- *Reset*: Re-center the icon
- *Tracker*: Turn the head-tracker back on
- *My Programs*: Go to the Home Screen

# A.1: Regulatory Notices

This equipment may be operated in the following countries and unions:
• United States, Canada, and the European Union

## Regulatory Agency IDs

For regulatory identification purposes, your product is assigned a model number of GOLDENI350.

To ensure continued reliable and safe operation of your device, use only the accessories listed below with your GOLDENI350.

The Battery Pack has been assigned a Part Number 20-01487-04.

The Battery Charger has been assigned Part Number of 20-10382-04.

The battery 20-01487-04 is only to be charged by the Battery Charger 20-10382-04. Any other charger may cause harmful damage.

This product is intended to be powered using Battery Pack 20-01487-04. Any other source may cause harmful damage.

## European Union Notice

Products with CE marking comply with the R&TTE Directive (99/5/EC), the EMC Directive (89/336/EEC), and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community. Compliance with these directives implies conformity to the following European Norms

This equipment is marked with and can be used throughout the European community.

This indicated compliance with the R&TTE Directive 1999/5/EC and meets the relevant parts of following technical specifications
.

• EN 60950-1:2006 Second Edition + A11:2009 Low Voltage Directive (Safety)
Safety of Information Technology Equipment.

• ETSI EN 301 489-17 2.1.1 (2009-05)
Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment; Part 17: Specific conditions for Broadband Data Transmission Systems.

• ETSI EN 300 328 v1.7.1 (2006-10)
Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband Transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using spread spectrum modulation techniques; Part 1: Technical characteristics and test conditions.
(Harmonized EN covering essential requirements under article 3.2 of the R&TTE directive.)

• EN 55024 1998+A1:2001+A2:2003
Information technology equipment - Immunity characteristics - Limits and methods of measurement

• EN 62311:2008
Assessment of Electronic and Electrical Equipment related to Human Exposure Restrictions for Electromagnetic Fields (0 Hz - 300 GHz)

• EN 55022 (Class B) 2006+A1:2007
Information Technology Equipment – Radio Disturbance Characteristics – Limits and Methods of Measurement

# Federal Communications Commission Notice

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or TV reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the   receiver is connected.

• Consult the dealer or an experienced radio or television technician for help.

# Industry Canada

• This Class B digital apparatus complies with Canadian ICES-003.
• This device complies with RSS-210 of Industry Canada (IC).
• Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of this device.

# Modifications

The FCC requires the user to be notified that any changes or modifications made to the device that are not expressly approved by Kopin Display Corporation may void the user's authority to operate the equipment.

# Safety Precautions for RF Exposure

This device and its antenna must not be collocated or operated in conjunction with any other antenna or transmitter. To comply with general RF exposure requirements, only use supplied antenna. Any unauthorized modification to the antenna or device could void the user's authority to operate this device.

Hereby, Kopin Corporation declares that this Golden I product is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. A copy of the Declaration of Conformity can be found at www.kopin.com.

# WEEE Notice

The Directive on Waste Electrical and Electronic Equipment (WEEE), which entered into force as European law on 13th February 2003, resulted in a major change in the treatment of electrical equipment at end-of-life. The purpose of this Directive is, as a first priority, the prevention of WEEE, and in addition, to promote the reuse, recycling and other forms of recovery of such wastes so as to reduce disposal.

The WEEE logo (shown at the left) on the product or on its box indicates that this product must not be disposed of or dumped with your other household waste. You are liable to dispose of all your electronic or electrical waste equipment by relocating over to the specified collection point for recycling of such hazardous waste. Isolated collection and proper recovery of your electronic and electrical waste equipment at the time of disposal will allow us to help conserving natural resources. Moreover, proper recycling of the electronic and electrical waste equipment will ensure safety of human health and environment. For more information about electronic and electrical waste equipment disposal, recovery, and collection points, please contact your local city centre, household waste disposal service, shop from where you purchased the equipment, or manufacturer of the equipment.

# RoHS Compliance

This product is in compliance with Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003, on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) and its amendments.

# A.2: Service and Repair

In the unlikely event that this device requires service or repair please contact Kopin Corporation *via* the online user forums at:

www.mygoldeni.com

or *via* email to support@mygoldeni.com

All items sent for repair must be accompanied by a Return Material Authorization Number (RMA). To obtain an RMA, contact Kopin Corporation via the online forums or email address listed above.

You will need the following information to get an RMA:

• Name
• Company Name
• Address
• Serial Number:
• Copy of sales receipt
• Purchase Date
• Description or the Request

# A.3: Specifications

| System Information | |
| --- | --- |
| Processor | OMAP 3530 (600MHz ARM, 433 MHz DSP) |
| Memory | 256Mb |
| Operating System | Windows CE 6.0 r3 |
| Ambient Temperature | Maximum: 25C |

| Power | |
| --- | --- |
| Battery | Rechargeable Lithium-ion Polymer Battery, 3.7Vdc, 1100mAh |
| Charging Time | 3 hours (typical) |
| Battery Life (Estimates) | 3-4 hours  (typical without radios enabled and using power management techniques) |

| Display | |
| --- | --- |
| LCD Type | 0.44 inch diagonal transmission LCD micro-display |
| Resolution | SVGA (800 x 600 pixels) |
| Alignment | Landscape |

| Radios | |
| --- | --- |
| Bluetooth | 2.1 EDR  at regular Bluetooth power |
| WIFI | B and G modes, at low power and ultra-low power |

| Connectors and Expansion Slots | |
| --- | --- |
| USB | Mini A adaptor, USB OTG |
| Card Slot | Micro SD |

# A.4: Switching the Optic Pod Left or Right

**The Golden-i optic pod should be positioned just below your DOMINANT EYE.**

If your dominant eye is left, the optic pod should be just below your left eye. If your dominant eye is right, the optic pod should be just below your right eye.  The Golden-i unit can be switched from left-eye to right eye using the following 6 step process.



Swapping the boom 1

Remove inner rubber cover.

Swapping the boom 2

1 - Remove cable from channel.
2 - Remove boom arm assembly.

| Swapping the boom | 3 |
| --- | --- |



Remove filler tab.

| Swapping the boom | 4 |
| --- | --- |



Replace filler tab on opposite side.

| Swapping the boom | 5 |
| --- | --- |



1 - Replace boom arm assembly on opposite side.
2 - Replace cable in cable channel.

| Swapping the boom | 6 |
| --- | --- |



Replace inner rubber cover.