Vector Documentation

None

Randall Maas & the Project Victor contributors

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1. Vector Resources

This is a wiki for gathering and sharing information about Anki Vector

1.1 Personalizing Vector

This is for notes on how to customize or personalize Vector. You may have to consult the How-To's below.

See also: the forums

1.2 Troubleshooting

- What Do Vector's Back Lights Mean?
- How to check for software problems
- The big long list of error codes is Appendix D of the Technical Reference Manual, and in TBD

See also the troubleshooting at DDL's site:

- Troubleshooting Vector's Connection
- How Do I Find Vector's Serial Number?
- Why does Vector need a 2.4 GHz network?
- Vector does not understand me: Troubleshooting Speech Recognition
- What Do Vector's Back Lights Mean?
- Why does Vector show an error?
- Troubleshooting charging issues
- Why is there no sound?

1.3 Service Guide

Collected notes on repairing or modifying Vector.

- Assembly and exploded view diagrams. I am a sucker for exploded diagrams and drawings.
- How to update software
- How to clean wheels/sensors
- Where to get parts -- treads, etc.
- How to replace the battery?
- Boards?

1.4 How-Tos

These try to tell you how to accomplish particular tasks.

Some highlights:

- Using GDB to trace function calls
- Using AudioKinetic WWise to convert sound files to WEM format
- Dauler sells stickers with the marker symbols prepirnt at (3D Designs by Dauler)[https://designsbydauler.com/collections/vector-robot]

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1.5 Developer documentation

These are reference documentation for programming tools to use Vector. Some of them are for the remote-access SDK's.

1.5.1 Technical Reference Manual

- Details on how Vector *works*
- Main architecture of the design (not necessarily the code though) and how it works
- File system structure, files, formats and contents
- Communication protocols

1.5.2 Programmers Guides and Examples

PC/Mobile SDK (HTTPS API)

- Python Communication SDK: Vector - Python SDK
- C# Communication SDK: Anki.Vector.SDK
- C# Anki.Resources.SDK
- See the SDK examples

Bluetooth LE implementations. There isnt an SDK for the Bluetooth LE protocol, but there are a few implementations that you might wish to look at/reuse:

- OS-X Objective-C
- linux & C
- Chrome & Javascript and here

1.5.3 WebViz and Console Variables

The developer builds of Vector's softw w

1.5.4 Application Notes

TODO

1.5.5 Vector Enhancement Proposals

These are proposals for changes -- enhancements -- to the modules on Vector.

Some highlights:

- An overview of the overall proposal process.
- VEP1. Update-engine changes
- VEP2. Packagement for modules on Vector

1.6 Historical Bots

This might a place for odds and ends info

- DVT bot info
- Whisky info
- etc

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1.7 Stuff to help collaborate

1.7.1 Guidance

These provide tips/suggestions on style, naming. They are related to the "How-to's" but they don't walk you thru to a specific goal. For instance, some might describe how to a do a particular style of design or implement a kind of behavior.

Examples:

- Recommendations for sound event names
- Steps that a design/process can do to meet the spec

Good title:

Bad title:

Writing guide.

- Other writer guides - Show how to do something in general, like a tutorial
- Document and show off how you built one of your projects Background: This is a note I made for myself to guide me on the right tone, help with consistency and give me some direction.

1.7.2 Templates

The document-templates folder includes some start files that can be used as templates when creating new documents:

- A template for how to documents
- A generic template for other files

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2. Contributing

2.1 Contributing

We want contributing to Project Victor to be fun, enjoyable, and educational for all. We love receiving contributions from our community, all contributions are welcome, including:

- issues (bug reports),
- new documents
- updates and tweaks,
- blog posts,
- workshops
- etc

There are many ways to contribute, including submitting bug reports, improving documentation, submitting feature requests, reviewing new submissions, or contributing bits that can be incorporated into the project.

2.1.1 Not sure how to start contributing?

If you are worried or don't know where to start, you can reach out with questions to anyone from the Project Victor team on

- **Official Anki developer forums**
- **Anki robots Discord chat**

2.1.2 Pair programming

Other projects offer free pair programming sessions to the community. I think that might be a neat idea, if there's something others would like to work on together.....

2.1.3 Code of Conduct

> By participating in this project, you agree to abide by our Code of Conduct. We expect all contributors to follow the Code of Conduct and to treat fellow humans with respect.

2.1.4 Important Resources

The important documents and links are on the front page of the wiki.

2.1.5 Improving Documentation

If you have a suggestion for the documentation, I would recommend that you take a stab at making the chnages to the documentatin.

For large fixes, please build and test the documentation before submitting the pull-request to be sure you haven't accidentally introduced any layout or formatting issues.

```
Provide instructions on building and viewing documentation
```

2.1.6 Contributing Code

This section is used to get new contributors up and running with dependencies, development, testing, style rules, formatting rules, and other things they should know.

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If you have a label for beginner issues, talk about that here so they know where to look:

> Unsure where to begin contributing to Atom? You can start by looking through these beginner and help-wanted issues: Beginner issues - issues which should only require a few lines of code, and a test or two. Help wanted issues - issues which should be a bit more involved than beginner issues.

Working on your first open source project or pull request? Her are some helpful tutorials:

- How to Contribute to an Open Source Project on GitHub
- Make a Pull Request
- First Timers Only

Getting Started

Install these dependencies:

```
with some examples
```

Provide some instructions for your workflow (e.g. fork the repository)

> You will need to fork the main repository to work on your changes. Simply navigate to our GitHub page and click the "Fork" button at the top. Once you've forked the repository, you can clone your new repository and start making edits.
>
> In git it is best to isolate each topic or feature into a “topic branch”. While individual commits allow you control over how small individual changes are made to the code, branches are a great way to group a set of commits all related to one feature together, or to isolate different efforts when you might be working on multiple topics at the same time.
>
> While it takes some experience to get the right feel about how to break up commits, a topic branch should be limited in scope to a single issue

```
# Checkout the master branch - you want your new branch to come from master
git checkout master

# Create a new branch named newfeature (give your branch its own simple informative name)
git branch newfeature

# Switch to your new branch
git checkout newfeature
```

For more information on the GitHub fork and pull-request processes, please see this helpful guide.

Finding an Issue

The list of outstanding feature requests and bugs can be found on our on our GitHub issue tracker. Pick an unassigned issue that you think you can accomplish and add a comment that you are attempting to do it.

Provide notes on different kinds of issues or labels

> `starter` labeled issues are deemed to be good low-hanging fruit for newcomers to the project `help-wanted` labeled issues may be more difficult than `starter` and may include new feature development `doc` labeled issues must only touch content in the `docs` folder.

Style Guidelines

If your code has any style guidelines, add them here or provide links to relevant documents. If you have an automated checker, make sure to provide instructions on how to run it.

Whitespace Cleanup

Don’t mix code changes with whitespace cleanup! If you are fixing whitespace, include those changes separately from your code changes. If your request is unreadable due to whitespace changes, it will be rejected.

> Please submit whitespace cleanups in a separate pull request.

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2.1.7 Pull Request Process

Do you have any labelling conventions?

Add notes for pushing your branch:

> When you are ready to generate a pull request, either for preliminary review, or for consideration of merging into the project you must first push your local topic branch back up to GitHub:

```
git push origin newfeature
```

Include a note about submitting the PR:

> Once you've committed and pushed all of your changes to GitHub, go to the page for your fork on GitHub, select your development branch, and click the pull request button. If you need to make any adjustments to your pull request, just push the updates to your branch. Your pull request will automatically track the changes on your development branch and update.

1. Ensure any install or build dependencies are removed before the end of the layer when doing a build.
2. You may merge the Pull Request in once you have the sign-off of two other developers, or if you do not have permission to do that, you may request the second reviewer to merge it for you.

Review Process

The process is likely to be lite for many changes.

Many pull requests are likely to open for several days, until the core team can apporve them in Github. In some cases, multiple people will have the chance to review/comment.

Addressing Feedback

Once a PR has been submitted, your changes will be reviewed and constructive feedback may be provided. Feedback isn't meant as an attack, but to help make sure the highest-quality code makes it into our project. Changes will be approved once required feedback has been addressed.

If a maintainer asks you to "rebase" your PR, they're saying that a lot of files has changed, and that you need to update your fork so it's easier to merge.

To update your forked repository, follow these steps:

```
# Fetch upstream master and merge with your repo's master branch
git fetch upstream
git checkout master
git merge upstream/master

# If there were any new commits, rebase your development branch
git checkout newfeature
git rebase master
```

If too much code has changed for git to automatically apply your branches changes to the new master, you will need to manually resolve the merge conflicts yourself.

Once your new branch has no conflicts and works correctly, you can override your old branch using this command:

```
git push -f
```

Note that this will overwrite the old branch on the server, so make sure you are happy with your changes first!

2.1.8 How people can contribute

- You can help us answer questions our users have
- You can help build and design our website
- You can help clean up our existing documentation, polishing it and so on
- You can help create new documentation

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- Create an example of some changes / fixes/ hacks

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2.2 Contributor Covenant Code of Conduct

2.2.1 Our Pledge

We as members, contributors, and leaders pledge to make participation in our community a harassment-free experience for everyone, regardless of age, body size, visible or invisible disability, ethnicity, sex characteristics, gender identity and expression, level of experience, education, socio-economic status, nationality, personal appearance, race, religion, or sexual identity and orientation.

We pledge to act and interact in ways that contribute to an open, welcoming, diverse, inclusive, and healthy community.

2.2.2 Our Standards

Examples of behavior that contributes to a positive environment for our community include:

- Demonstrating empathy and kindness toward other people
- Being respectful of differing opinions, viewpoints, and experiences
- Giving and gracefully accepting constructive feedback
- Accepting responsibility and apologizing to those affected by our mistakes, and learning from the experience
- Focusing on what is best not just for us as individuals, but for the overall community

Examples of unacceptable behavior include:

- The use of sexualized language or imagery, and sexual attention or advances of any kind
- Trolling, insulting or derogatory comments, and personal or political attacks
- Public or private harassment
- Publishing others' private information, such as a physical or email address, without their explicit permission
- Other conduct which could reasonably be considered inappropriate in a professional setting

2.2.3 Enforcement Responsibilities

Community leaders are responsible for clarifying and enforcing our standards of acceptable behavior and will take appropriate and fair corrective action in response to any behavior that they deem inappropriate, threatening, offensive, or harmful.

Community leaders have the right and responsibility to remove, edit, or reject comments, commits, code, wiki edits, issues, and other contributions that are not aligned to this Code of Conduct, and will communicate reasons for moderation decisions when appropriate.

2.2.4 Scope

This Code of Conduct applies within all community spaces, and also applies when an individual is officially representing the community in public spaces. Examples of representing our community include using an official e-mail address, posting via an official social media account, or acting as an appointed representative at an online or offline event.

2.2.5 Enforcement

Instances of abusive, harassing, or otherwise unacceptable behavior may be reported to the community leaders responsible for enforcement at [INSERT CONTACT METHOD]. All complaints will be reviewed and investigated promptly and fairly.

All community leaders are obligated to respect the privacy and security of the reporter of any incident.

2.2.6 Enforcement Guidelines

Community leaders will follow these Community Impact Guidelines in determining the consequences for any action they deem in violation of this Code of Conduct:

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1. Correction

Community Impact: Use of inappropriate language or other behavior deemed unprofessional or unwelcome in the community.

Consequence: A private, written warning from community leaders, providing clarity around the nature of the violation and an explanation of why the behavior was inappropriate. A public apology may be requested.

2. Warning

Community Impact: A violation through a single incident or series of actions.

Consequence: A warning with consequences for continued behavior. No interaction with the people involved, including unsolicited interaction with those enforcing the Code of Conduct, for a specified period of time. This includes avoiding interactions in community spaces as well as external channels like social media. Violating these terms may lead to a temporary or permanent ban.

3. Temporary Ban

Community Impact: A serious violation of community standards, including sustained inappropriate behavior.

Consequence: A temporary ban from any sort of interaction or public communication with the community for a specified period of time. No public or private interaction with the people involved, including unsolicited interaction with those enforcing the Code of Conduct, is allowed during this period. Violating these terms may lead to a permanent ban.

4. Permanent Ban

Community Impact: Demonstrating a pattern of violation of community standards, including sustained inappropriate behavior, harassment of an individual, or aggression toward or disparagement of classes of individuals.

Consequence: A permanent ban from any sort of public interaction within the community.

2.2.7 Attribution

This Code of Conduct is adapted from the Contributor Covenant, version 2.0, available at https://www.contributor-covenant.org/version/2/0/code_of_conduct.html.

Community Impact Guidelines were inspired by Mozilla's code of conduct enforcement ladder.

For answers to common questions about this code of conduct, see the FAQ at https://www.contributor-covenant.org/faq. Translations are available at https://www.contributor-covenant.org/translations.

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3. Customization

3.1 Customization

This is for notes on how to customize or personalize Vector.

See also: the forums

It might be thru configuring the software and files:

- Sounds
- Body movements
- Eyes
- Colors?
- PNGs on face
- Backpack lights
- Cube lights
- Other custom animations

Or it might be physical changes, and tweaks that are distinctive and identify

.. Link to a showcase ..?

3.1.1 Customizing animations

- animation of eyes
- body movements
- boot animation

People would love tools to gen the animation file… but I suspect that may be hard. The presentations made it sound like it was a lot of Maya rigging and plugins for the export.. but since Maya is expensive, and hard..

Maybe a Unity model tool could be made with a rigged model of Vector? and such for I suspect the value vs effort isn't there for such a specialized area, but who knows?

Tools for generating animation files.

What about mixing-matching existing animations, and adjusting them slightly?

3.1.2 Sounds

3.1.3 Behavior tree crafting

3.1.4 Body modifications

- Ikkez sells cute ears, deedly-boppers at his Etsy site
- Dauler sells ear, horns, treads, stickers, and other fanciful mods, and 3D STL's at 3D Designs by Dauler and Etsy

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3.2 Nose Art Showcase

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4. Document templates

4.1 VEP Template

```
---
title: VEP123 - The name of the VEP (only a few words)
summary: An optional description of the proposal, if the title is too short
authors:
    - Author Name
date: 2022-07-10
---
```

(remove the quotes; they are so that the template is readable)

4.1.1 Description of the changes

Motivation: A synopsis of why this should be done -- we don't want complicated goo-gaws for the sake of it.

4.1.2 Some Design decisions

Optional

4.1.3 Documentation

The documentation (if short) or where can the documentation be found

4.1.4 Cavaets

List any limits / warnings about this

4.1.5 Status

Has it been tried? How much? Where?

4.1.6 References

4.1.7 Change history synopsis

Summary of changes to help the reader

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4.2 How-to template

{Choose a good title name for the file. It should lead with what it noun or action is, and follow the pattern of other documents in this section}

4.2.1 References and Resources

Optional Include some some links to other resources here.

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4.3 Template

{Choose a good title name for the file. It should lead with what it noun or action is, and follow the pattern of other documents in this section}

4.3.1 References and Resources

Optional Include some some links to other resources here.

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5. How to

5.1 How to trace calls using GDB

Vector's command line tools do not include a ptrace (as far as I can see). This can be emulated with GDB. Here is an example tracing a write() call.

1. Start gdb and attach to the process of interest.
2. Add the following scripted breakpoints:

```
break write
command
silent
printf "%d bytes\n", $r2
x/80c $r1
continue
end
```

```
set pagination off
```


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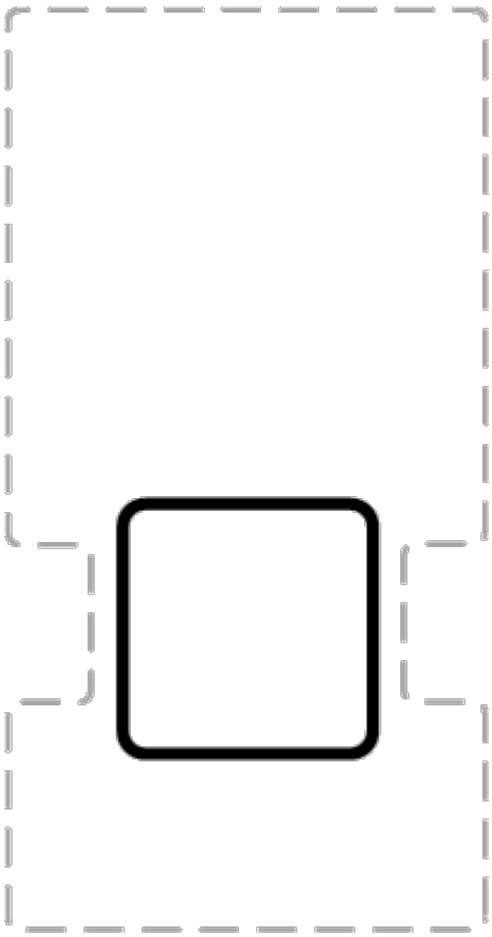
5.2 Making paper dolls for Vector to play with



5.2.1 Laser Printer Version

1. Download one of the two version of the pattern template:
    - Without the symbols: PDF or Visio
    - One includes little symbols on them
    - The other doesn't (You can add the pictures using stickers)
2. Make any changes, like adding color patters (Optional)
3. Print. If you're like me, the printer doesn't like card stock
4. Cut out
5. Use a glue, like a spray glue, to attach to cardstock
6. Cut that.
7. Color it in (Optional)
8. Add little tails so it will stay upright

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5.2.2 Cricut Version

1. Download one of the two version of the pattern template:
    - Without the symbols: PDF or Visio
    - One includes little symbols on them
    - The other doesn't (You can add the pictures using stickers)
    - One has the cut pattern
    - Two have the print patterns. Pick one.
2. Make any changes, like adding color patters (Optional)
3. Use Cricut, print-then-cut mode
    - Print
    - Cut out
    - Cut out card stock
4. Print on cardstock? If you're like me, the printer doesn't like card stock
5. Use a glue, like a spray glue, to attach to cardstock
6. Color it in (Optional)
7. Add little tails so it will stay upright

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5.3 Using AudioKinetic WWise to convert the sound files to WEM

This is not an easy tool to use, or export from. First download and install AudioKinetic WWise.

5.3.1 Importing

1. Project>Import Audio files [image]
2. Click "Add Files" button
3. Select files
4. Click "Open"
5. Click "Import"

5.3.2 Settings.

How to get setting.

1. I went to search, typed name
2. On the popup of the files, Right Click
3. Select "Edit"
4. Click "Conversion" tab
5. Click "Edit" button
6. Scrolled until the Format is visible
7. Change this to "Vorbis" {The other items may warrant tweeking, but I don't know about them yet.}

5.3.3 Converting and exporting

1. Project >> Convert All Audio Files
2. Click "Ok"
3. Todo: steps to find the WEM files
4. Todo: steps to replace the one on vector

5.3.4 Issues

The soundbank may be too large.

- WWise, free version, has a cap of 200 audio files max
- Break the soundbanks up so that people can modify the free tools
- The tool is hard to use.

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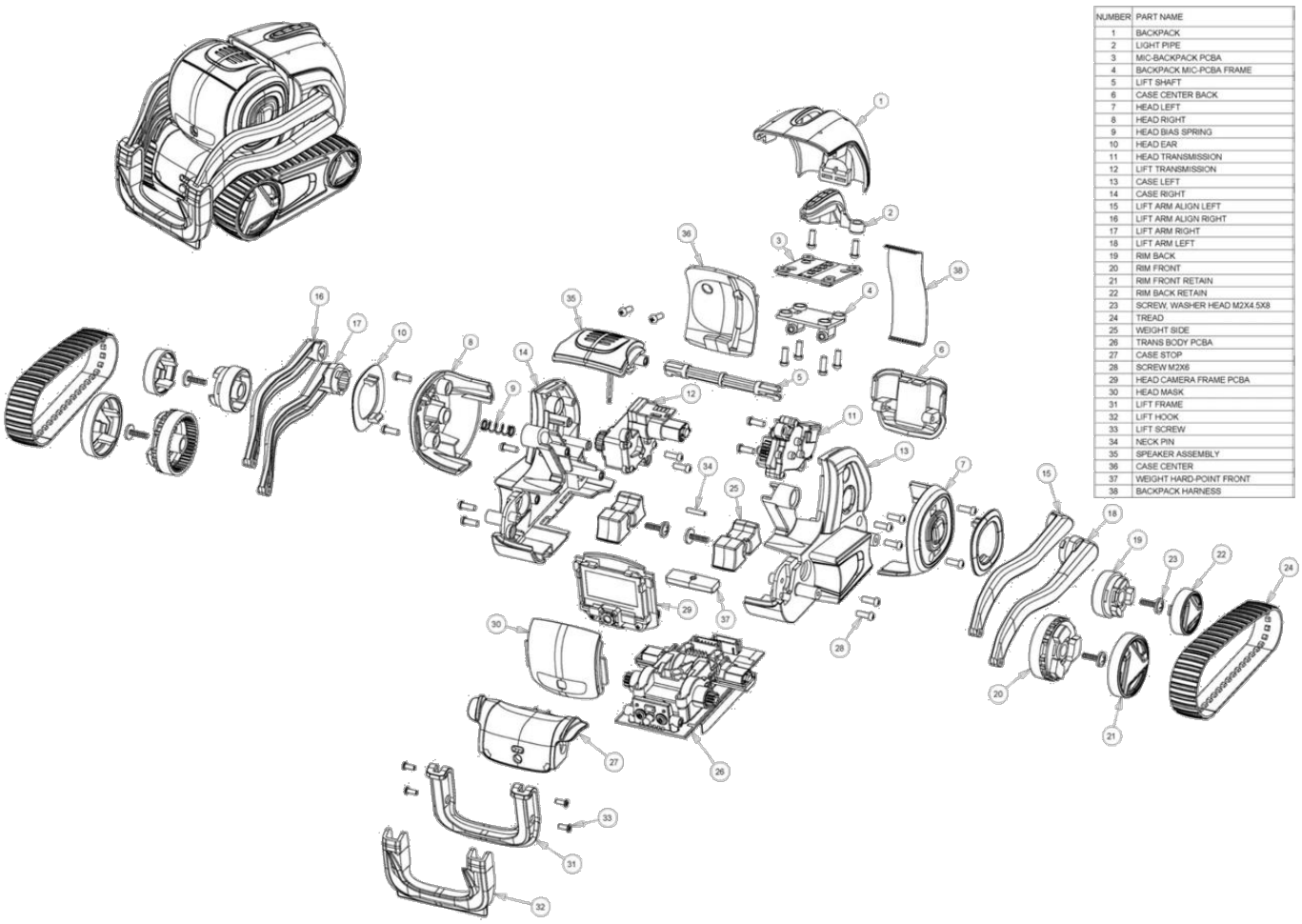
6. Service

6.1 Exploded View

6.1.1 Exploded Views of Vector's assembly



NUMBER	PART NAME
1	BACKPACK
2	LIGHT PIPE
3	MIC-BACKPACK PCBA
4	BACKPACK MIC-PCBA FRAME
5	LIFT SHAFT
6	CASE CENTER BACK
7	HEAD LEFT
8	HEAD RIGHT
9	HEAD BIAS SPRING
10	HEAD EAR
11	HEAD TRANSMISSION
12	LIFT TRANSMISSION
13	CASE LEFT
14	CASE RIGHT
15	LIFT ARM ALIGN LEFT
16	LIFT ARM ALIGN RIGHT
17	LIFT ARM RIGHT
18	LIFT ARM LEFT
19	RIM BACK
20	RIM FRONT
21	RIM FRONT RETAIN
22	RIM BACK RETAIN
23	SCREW, WASHER HEAD M2X4.5X8
24	TREAD
25	WEIGHT SIDE
26	TRANS BODY PCBA
27	CASE STOP
28	SCREW M2X6
29	HEAD CAMERA FRAME PCBA
30	HEAD MASK
31	LIFT FRAME
32	LIFT HOOK
33	LIFT SCREW
34	NECK PIN
35	SPEAKER ASSEMBLY
36	CASE CENTER
37	WEIGHT HARD-POINT FRONT
38	BACKPACK HARNESS

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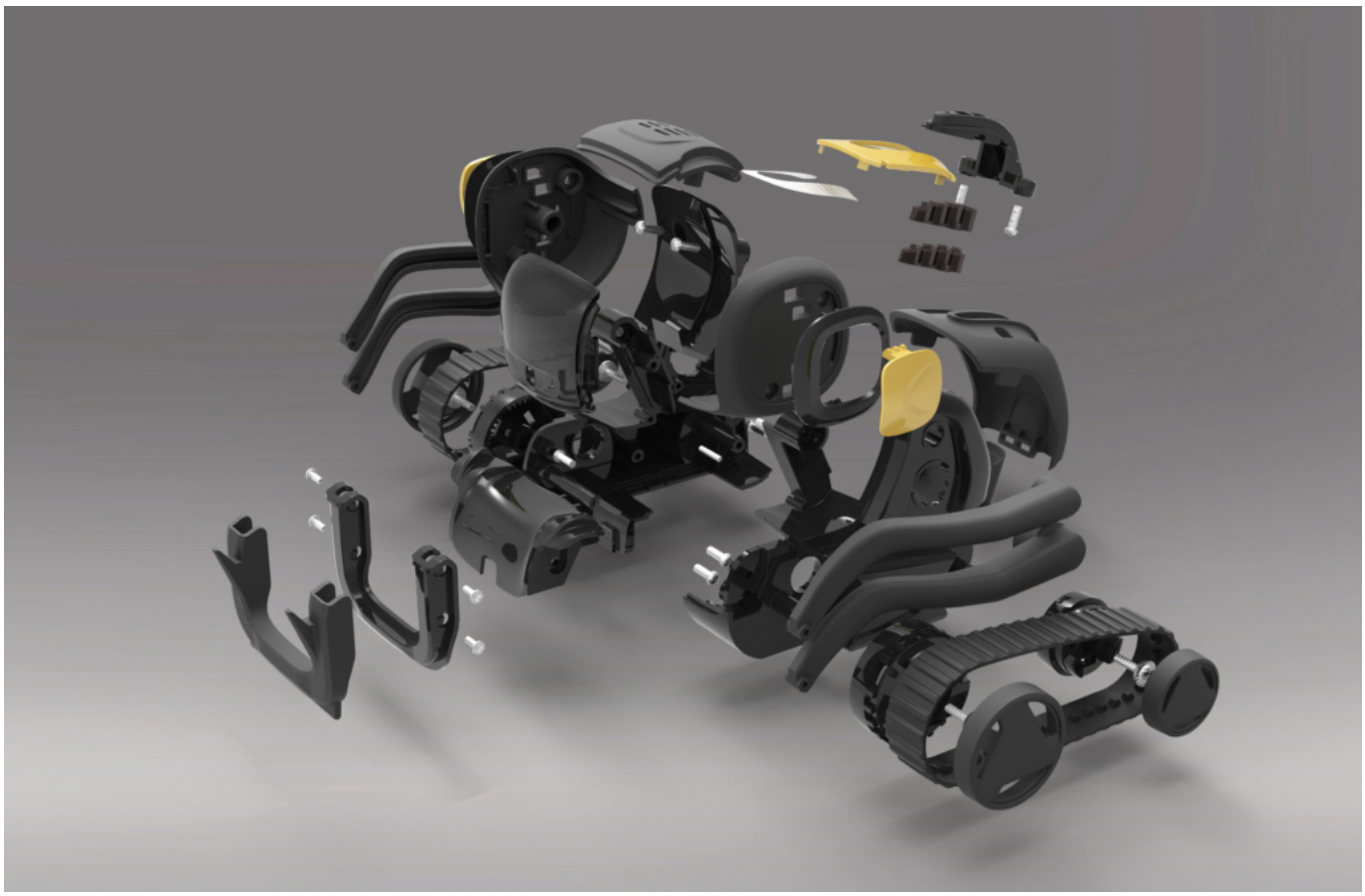

Zoom in on the exploded view of head

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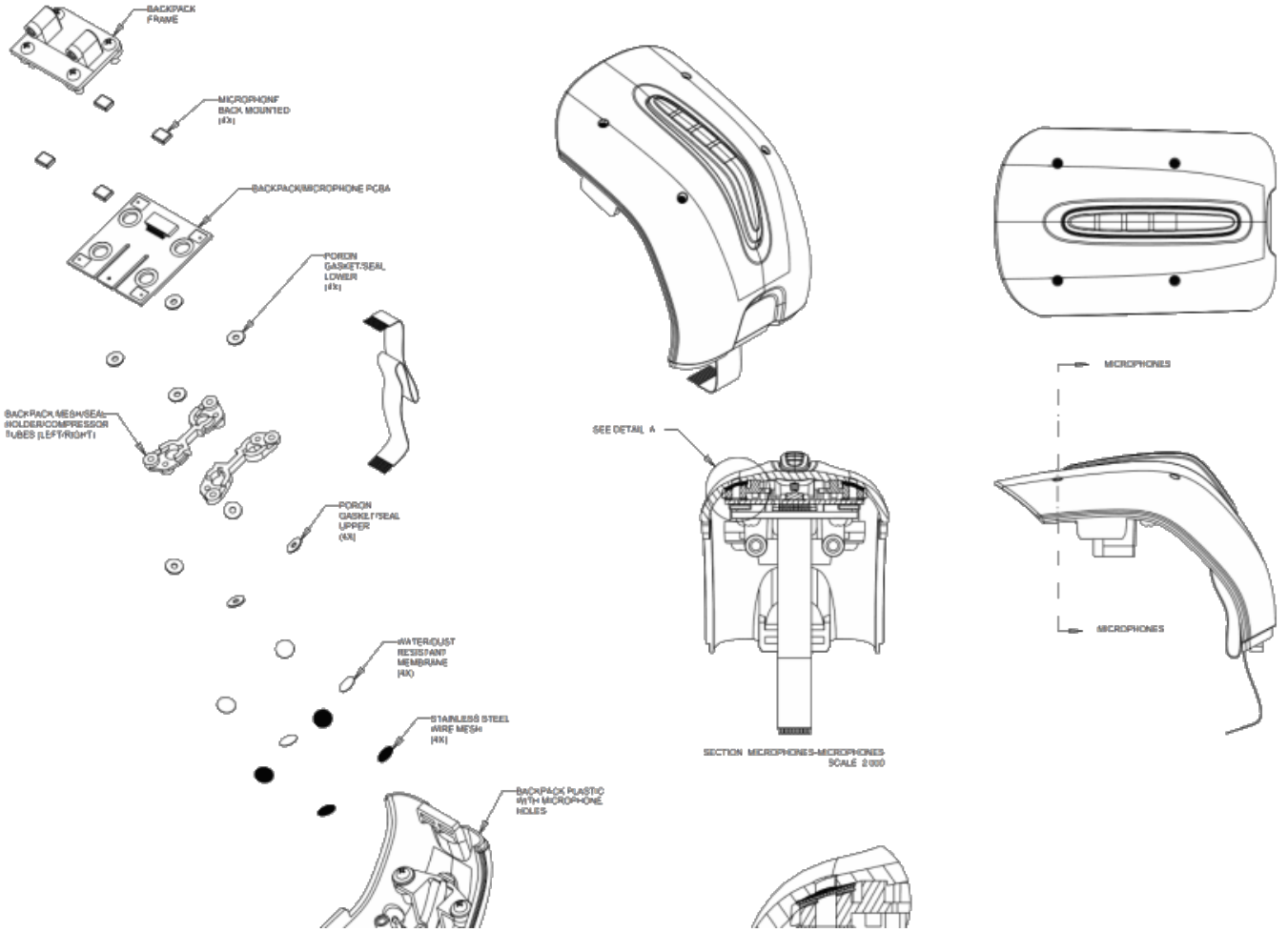
An exploded view of backpack assembly



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6.2 Parts kits

- Replacement Parts: Wheel hubs, wheels, treads, lift arms, body boards, back pack boards, ears, gears, etc.
- Dauler sells treads at 3D Designs by Dauler

Replacement boards

- Body boards
- Time of flight boards
- LCD module
- Motor encoder
- Backpack boards

Modifying board firmware:

- Mechanism to sign new body board FW?

6.2.1 Playpen

Method to recalibrate bots at home? - Body board FW with playpen/factory interface?

(Is that even practical?)

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7. Software design

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7.1 Animation Triggers

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Trigger Name	Description
AlexaError2Idle	
AlexaErrorLoop	
AlexaErrorLoop	
AlexaIdle2Listen	
AlexaIdle2Speak	
AlexaListen2Error	
AlexaListen2Idle	
AlexaListen2Speak	
AlexaListen2Think	
AlexaListenLoop	
AlexaNotification	
AlexaSignOut	
AlexaSpeak2Error	
AlexaSpeak2Idle	
AlexaSpeak2Listen	
AlexaSpeakLoop	
AlexaThink2Error	
AlexaThink2Idle	
AlexaThink2Speak	
AlexaThinkLoop	
AlreadyAtFace	
AudioOnlyHuh	
BlackJack_Deal	
BlackJack_GetIn	
BlackJack_GoodLuck	
BlackJack_Idle	
BlackJack_Quit	
BlackJack_Response	
BlackJack_RtpIdle	
BlackJack_RtpPlayerNo	
BlackJack_RtpPlayerYes	
BlackJack_RtpRequest	
BlackJack_RtpTimeOut	
BlackJack_SpeechGetIn	
BlackJack_SpeechShortStatement	

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Trigger Name	Description
BlackJack_Spread	
BlackJack_Swipe	
BlackJack_VictorBlackJackLose	
BlackJack_VictorBlackJackWin	
BlackJack_VictorBust	
BlackJack_VictorLose	
BlackJack_VictorPush	
BlackJack_VictorWin	
BumpObjectFastGetIn	
BumpObjectFastGetOut	
BumpObjectFastLoop	
BumpObjectSlowGetIn	
BumpObjectSlowGetOut	
BumpObjectSlowLoop	
Carrying	
ChargerDockingAlreadyHere	
ChargerDockingDrivingEnd	
ChargerDockingDrivingLoop	
ChargerDockingDrivingStart	
ChargerDockingFailure	
ChargerDockingLeftTurn	
ChargerDockingRaiseLift	
ChargerDockingRequest	
ChargerDockingRequestGetout	
ChargerDockingRequestPickup	
ChargerDockingRequestWaitLoop	
ChargerDockingRightTurn	
ChargerDockingSearchAfterCompletedSearch	
ChargerDockingSearchSingleTurn	
ChargerDockingSearchSingleTurnEnd	
ChargerDockingSearchWaitForImages	
ChargerDockingSettle	
ChargerDockingSevereRequest	
ChargerDockingSevereRequestGetout	
ChargerDockingSorryButLowBattery	

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Trigger Name	Description
ChargerReaction	
ChargerReaction	
ChargerReaction	
ClockGetIn	
ClockGetOut	
ComeHereStart	
ComeHereSuccess	
ConnectToCubeFailure	
ConnectToCubeGetIn	
ConnectToCubeLoop	
ConnectToCubeLostConnection	
ConnectToCubeSuccess	
ConnectWakeUp	
ConnectWakeUpLights	
Connected	
CountingFastLoop	
CountingGetInEven	
CountingGetInOdd	
CountingGetOut	
CountingSlowLoop	
CubePounceBackup	
CubePounceDriveGetIn	
CubePounceDriveGetOut	
CubePounceDriveLoop	
CubePounceFake	
CubePounceGetIn	
CubePounceGetOutBored	
CubePounceGetReady	
CubePounceGetUnready	
CubePounceIdleLiftDown	
CubePounceIdleLiftUp	
CubePounceLoseHand	
CubePounceLoseSession	
CubePouncePlayerLose	
CubePouncePlayerWin	

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Trigger Name	Description
CubePouncePounceClose	
CubePouncePounceNormal	
CubePounceReactToCube	
CubePounceWinHand	
CubePounceWinSession	
DEPRECATED_AcknowledgeFaceNamed	
DEPRECATED_AcknowledgeFaceUnnamed	
DEPRECATED_AcknowledgeObject	
DEPRECATED_ComeHere_SearchForFace	
DEPRECATED_CubeMovedSense	
DEPRECATED_CubeMovedUpset	
DEPRECATED_DizzyReactionHard	
DEPRECATED_DizzyReactionMedium	
DEPRECATED_DizzyReactionSoft	
DEPRECATED_DizzyShakeLoop	
DEPRECATED_DizzyShakeStop	
DEPRECATED_DizzyStillPickedUp	
DEPRECATED_LaserAcknowledge	
DEPRECATED_LaserDriveEnd	
DEPRECATED_LaserDriveLoop	
DEPRECATED_LaserDriveStart	
DEPRECATED_LaserGetOut	
DEPRECATED_LaserPounce	
DEPRECATED_LookDownForLaser	
DEPRECATED_NamedFaceInitialGreeting	
DEPRECATED_SearchForFace_FoundFace	
DEPRECATED_SearchForFace_Search	
DEPRECATED_StackBlocksSuccess	
DanceBeatCantDoThat	
DanceBeatEyeHold	
DanceBeatGetIn	
DanceBeatGetOut	
DanceBeatGetReady	
DanceBeatListening	
DanceBeatNoBeatDetected	

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Trigger Name	Description
DanceToTheBeat	
DealerCardLayout	
DockEndDefault	
DockLoopDefault	
DockStartDefault	
DriveEndAngry	
DriveEndDefault	
DriveEndHappy	
DriveEndLaunch	
DriveLoopAngry	
DriveLoopDefault	
DriveLoopHappy	
DriveLoopLaunch	
DriveOffChargerFarLeft	
DriveOffChargerFarRight	
DriveOffChargerLeft	
DriveOffChargerRight	
DriveOffChargerStraight	
DriveStartAngry	
DriveStartDefault	
DriveStartHappy	
DriveStartLaunch	
DrivingTo	
ExploringHuhClose	
ExploringHuhFar	
ExploringLookAround	
ExploringLookAtHuman	
ExploringQuickScan	
ExploringReactToHandDrive	
ExploringReactToHandGetIn	
ExploringReactToHandGetOut	
ExploringReactToHandLift	
ExploringReactToHandReaction	
ExploringScanCenterFromLeft	
ExploringScanCenterFromRight	

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Trigger Name	Description
ExploringScanToLeft	
ExploringScanToRight	
EyeColorGetIn	
EyeColorGetOut	
EyeColorIdle	
EyeColorSwitch	
EyeContactLookLoop	
FacePlantRoll	
FacePlantRollArmUp	
FailedToRightFromFace	
Feedback_Apology	
Feedback_BadRobot	
Feedback_BeQuiet	
Feedback_GoodRobot	
Feedback_ILoveYou	
Feedback_MeanWords	
Feedback_ShutUp	
FetchCubeFailure	
FetchCubeSetDown	
FetchCubeSuccess	
FindCubeReactToCube	
FindCubeTurns	
FindCubeWaitLoop	
FistBumpIdle	
FistBumpLeftHanging	
FistBumpRequestOnce	
FistBumpRequestRetry	
FistBumpSuccess	
Flash	
FlipDownFromBack	
FoundFace	
FrustratedByFailureMajor	
GatherCubesAllCubesInBeacon	
GatherCubesCubeInBeacon	
GazingLookAtFacesGetInLeft	

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Trigger Name	Description
GazingLookAtFacesGetInRight	
GazingLookAtFacesTurnLeft	
GazingLookAtFacesTurnRight	
GazingLookAtSurfaceReaction	
GazingLookAtSurfaceTurnLeft	
GazingLookAtSurfacesGetInLeft	
GazingLookAtSurfacesGetInRight	
GazingLookAtSurfacesTurnRight	
GazingLookAtVectorReaction	
GoToSleepGetIn	
GoToSleepOff	
GoToSleepSleeping	
GreetAfterLongTime	
HeldOnPalmEdgeNervous	
HeldOnPalmEdgeRelaxed	
HeldOnPalmGetInNervous	
HeldOnPalmGetInRelaxed	
HeldOnPalmLookingNervous	
HeldOnPalmNestling	
HeldOnPalmPickupNervous	
HeldOnPalmPickupRelaxed	
HeldOnPalmPutDownNervous	
HeldOnPalmPutDownRelaxed	
HeldOnPalmReactToJolt	
HeldOnPalmRollOff	
HeldOnPalmTransitionToRelaxed	
HighTemperatureWarningFace	
ICantDoThat	
Idle_09	
InitialWakeUp	
InteractWithFaceTrackingIdle	
InteractWithFacesInitialNamed	
InteractWithFacesInitialUnnamed	
Interacting	
InteractingBehaviorLock	

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Trigger Name	Description
InvalidAnimTrigger	
InvestigateHeldCubeGetIn	
InvestigateHeldCubeGetOutBored	
InvestigateHeldCubeGetOutCubeLost	
InvestigateHeldCubeOnSetDown	
InvestigateHeldCubeTrackingLoop	
KnowledgeGraphAnswer	
KnowledgeGraphGetIn	
KnowledgeGraphGetOut	
KnowledgeGraphListening	
KnowledgeGraphSearching	
KnowledgeGraphSearchingFail	
KnowledgeGraphSearchingFailGetOut	
KnowledgeGraphSearchingGetIn	
KnowledgeGraphSearchingGetOutSuccess	
KnowledgeGraphSuccessReaction	
LookAround	
LookAtDevice	
LookAtDeviceGetIn	
LookAtDeviceGetOut	
LookAtUserEndearingly	
LookInPlaceForFacesBodyPause	
LookInPlaceForFacesBodyPause_Active	
LookInPlaceForFacesHeadMovePause	
LowBattery	
MeetVictor	
MeetVictorConfusion	
MeetVictorDuplicateName	
MeetVictorGetIn	
MeetVictorLookFace	
MeetVictorLookFaceInterrupt	
MeetVictorSawWrongFace	
MeetVictorSayName	
MeetVictorSayNameAgain	
MessagingMessageDeletedShort	

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Trigger Name	Description
MessagingMessageGetIn	
MessagingMessageGetOut	
MessagingMessageLoop	
MessagingMessageRecordReaction	
MessagingMessageRewind	
MovementDriveBackward	
MovementDriveForward	
MovementTurnAround	
MovementTurnLeft	
MovementTurnRight	
Muted	
NeutralFace	
NoCloudGetIn	
NoCloudIcon	
NoWifiGetIn	
NoWifiIcon	
NoWifiSearching	
NothingToDoBoredIdle	
ObservingIdleEyesOnly	
ObservingIdleWithHeadLookingStraight	
ObservingIdleWithHeadLookingUp	
ObservingLookStraight	
ObservingLookUp	
ObservingOnCharger	
ObservingOnChargerGetIn	
ObservingOnChargerGetOut	
Off	
Offline	
Offline_Off	
Onboarding	
OnboardingComeHere	
OnboardingComeHereGetOut	
OnboardingCubeDriveGetIn	
OnboardingCubeDriveGetOut	
OnboardingCubeDriveLoop	

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Trigger Name	Description
OnboardingCubeHuh	
OnboardingDriveOffCharger	
OnboardingDriveOffCharger_1p0	
OnboardingListenGetIn	
OnboardingListenGetOut	
OnboardingLookAround	
OnboardingLookAtPhoneDown	
OnboardingLookAtPhoneLoop	
OnboardingLookAtPhoneUp	
OnboardingLookAtUser	
OnboardingLookAtUserGetOut_1p0	
OnboardingLookDown	
OnboardingLookForCube	
OnboardingReactToFaceHappy	
OnboardingWakeUp	
OnboardingWakeWordGetIn	
OnboardingWakeWordSuccess	
PRDemoGreeting	
PettingBlissGetout	
PettingBlissLoop	
PettingLevel1	
PettingLevel1Getout	
PettingLevel2	
PettingLevel2Getout	
PettingLevel3	
PettingLevel3Getout	
PettingLevel4	
PettingLevel4Getout	
PickupCubePreperation	
PickupCubeRetry	
PickupCubeSuccess	
PlaceCubeByChargerFail	
PlaceCubeByChargerReactToCharger	
PlaceCubeByChargerSuccess	
PlanningGetIn	

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Trigger Name	Description
PlanningGetOut	
PlanningLoop	
PlayerCardLayout	
PokeObjectDriveLoop	
PokeObjectGetIn	
PokeObjectGetOut	
PopAWheelieInitial	
PopAWheeliePreActionNamedFace	
PopAWheeliePreActionUnnamedFace	
PopAWheelieRealign	
PopAWheelieRetry	
PounceFail	
PounceSuccess	
PounceWProxForward	
PutDownBlockKeepAlive	
PutDownBlockPutDown	
RTS_OffCharger_Awake_120Left	
RTS_OffCharger_Awake_120Right	
RTS_OffCharger_Awake_150Left	
RTS_OffCharger_Awake_150Right	
RTS_OffCharger_Awake_30Left	
RTS_OffCharger_Awake_30Right	
RTS_OffCharger_Awake_60Left	
RTS_OffCharger_Awake_60Right	
RTS_OffCharger_Awake_Ambient	
RTS_OffCharger_Awake_Back	
RTS_OffCharger_Awake_Front	
RTS_OffCharger_Awake_Left	
RTS_OffCharger_Awake_Right	
RTS_OffCharger_Sleep_120Left	
RTS_OffCharger_Sleep_120Right	
RTS_OffCharger_Sleep_150Left	
RTS_OffCharger_Sleep_150Right	
RTS_OffCharger_Sleep_30Left	
RTS_OffCharger_Sleep_30Right	

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Trigger Name	Description
RTS_OffCharger_Sleep_60Left	
RTS_OffCharger_Sleep_60Right	
RTS_OffCharger_Sleep_Ambient	
RTS_OffCharger_Sleep_Back	
RTS_OffCharger_Sleep_Front	
RTS_OffCharger_Sleep_Left	
RTS_OffCharger_Sleep_Right	
RTS_OnCharger_Awake_120Left	
RTS_OnCharger_Awake_120Right	
RTS_OnCharger_Awake_150Left	
RTS_OnCharger_Awake_150Right	
RTS_OnCharger_Awake_30Left	
RTS_OnCharger_Awake_30Right	
RTS_OnCharger_Awake_60Left	
RTS_OnCharger_Awake_60Right	
RTS_OnCharger_Awake_Ambient	
RTS_OnCharger_Awake_Back	
RTS_OnCharger_Awake_Front	
RTS_OnCharger_Awake_Left	
RTS_OnCharger_Awake_Right	
RTS_OnCharger_Sleep_120Left	
RTS_OnCharger_Sleep_120Right	
RTS_OnCharger_Sleep_150Left	
RTS_OnCharger_Sleep_150Right	
RTS_OnCharger_Sleep_30Left	
RTS_OnCharger_Sleep_30Right	
RTS_OnCharger_Sleep_60Left	
RTS_OnCharger_Sleep_60Right	
RTS_OnCharger_Sleep_Ambient	
RTS_OnCharger_Sleep_Back	
RTS_OnCharger_Sleep_Front	
RTS_OnCharger_Sleep_Left	
RTS_OnCharger_Sleep_Right	
ReactToCliff	
ReactToCliffBack	

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Trigger Name	Description
ReactToCliffBackLeft	
ReactToCliffBackRight	
ReactToCliffFront	
ReactToCliffFrontLeft	
ReactToCliffFrontRight	
ReactToCliffTurnLeft120	
ReactToCliffTurnLeft180	
ReactToCliffTurnLeft60	
ReactToCliffTurnRight120	
ReactToCliffTurnRight180	
ReactToCliffTurnRight60	
ReactToCubeSearchForCubeLvl1	
ReactToCubeSearchForCubeLvl2	
ReactToCubeSearchForCubeLvl3	
ReactToCubeTapCubeFound	
ReactToCubeTapCubeNotFound	
ReactToCubeTapCubeTappedLvl1	
ReactToCubeTapCubeTappedLvl2	
ReactToCubeTapCubeTappedLvl3	
ReactToCubeTapInteractionGetOut	
ReactToCubeTapInteractionLoop	
ReactToDarkness	
ReactToGoodBye	
ReactToGoodMorning	
ReactToGoodNight	
ReactToGreeting	
ReactToHabitat	
ReactToMotionLeft	
ReactToMotionLeftGetout	
ReactToMotionRight	
ReactToMotionRightGetout	
ReactToMotionTurnLeft	
ReactToMotionTurnRight	
ReactToMotionTurnUp	
ReactToMotionUp	

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Trigger Name	Description
ReactToMotionUpGetout	
ReactToObstacle	
ReactToOnLeftSideGetIn	
ReactToOnLeftSideLoop	
ReactToOnRightSideGetIn	
ReactToOnRightSideLoop	
ReactToOnSideEffort	
ReactToOnSideGetOut	
ReactToPerchedOnBlock	
ReactToPickupInitial	
ReactToPickupLoop	
ReactToPutDown	
ReactToShakeSnowGlobe_GetIn	
ReactToShakeSnowGlobe_Lvl1InHand	
ReactToShakeSnowGlobe_Lvl1Loop	
ReactToShakeSnowGlobe_Lvl1OnGround	
ReactToShakeSnowGlobe_Lvl1Waiting	
ReactToShake_GetIn	
ReactToShake_Lvl1InHand	
ReactToShake_Lvl1Loop	
ReactToShake_Lvl1OnGround	
ReactToShake_Lvl1Waiting	
ReactToShake_Lvl2InHand	
ReactToShake_Lvl2Loop	
ReactToShake_Lvl2OnGround	
ReactToShake_Lvl2Waiting	
ReactToShake_Lvl3InHand	
ReactToShake_Lvl3Loop	
ReactToShake_Lvl3OnGround	
ReactToShake_Lvl3Waiting	
ReactToTouchInitial	
ReactToTriggerWordOffChargerBehind	
ReactToTriggerWordOffChargerBehindLeft	
ReactToTriggerWordOffChargerBehindRight	
ReactToTriggerWordOffChargerFrontLeft	

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Trigger Name	Description
ReactToTriggerWordOffChargerFrontRight	
ReactToTriggerWordOffChargerLeft	
ReactToTriggerWordOffChargerRight	
ReactToUnclaimedIntent	
ReactToUnclaimedIntentInAir	
ReactToUnexpectedMovement	
RollBlockRealign	
RollBlockRetry	
RollBlockSuccess	
SeasonalHappyHolidays	
SeasonalHappyNewYear	
ShutDown	
Sleep	
SleepNoFade	
SoundOnlyLiftEffortPickup	
SoundOnlyLiftEffortPlaceHigh	
SoundOnlyLiftEffortPlaceLow	
SoundOnlyLiftEffortPlaceRoll	
SpeedTapLose	
SpeedTapWin	
SpinnerBlueCelebration	
SpinnerBlueCycle	
SpinnerBlueHoldTarget	
SpinnerBlueLockIn	
SpinnerBlueLocked	
SpinnerBlueLockedPulse	
SpinnerBlueSelectTarget	
SpinnerGreenCelebration	
SpinnerGreenCycle	
SpinnerGreenHoldTarget	
SpinnerGreenLockIn	
SpinnerGreenLocked	
SpinnerGreenLockedPulse	
SpinnerGreenSelectTarget	
SpinnerPlayerError	

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Trigger Name	Description
SpinnerPurpleCelebration	
SpinnerPurpleCycle	
SpinnerPurpleHoldTarget	
SpinnerPurpleLockIn	
SpinnerPurpleLocked	
SpinnerPurpleLockedPulse	
SpinnerPurpleSelectTarget	
SpinnerRedCelebration	
SpinnerRedCycle	
SpinnerRedHoldTarget	
SpinnerRedLockIn	
SpinnerRedLocked	
SpinnerRedLockedPulse	
SpinnerRedSelectTarget	
SpinnerStartGame	
SpinnerYellowCelebration	
SpinnerYellowCycle	
SpinnerYellowHoldTarget	
SpinnerYellowLockIn	
SpinnerYellowLocked	
SpinnerYellowLockedPulse	
SpinnerYellowSelectTarget	
Streaming	
StuckOnEdgeGetIn	
StuckOnEdgeIdle	
StuckOnEdgeLeftGetIn	
StuckOnEdgeLeftIdle	
StuckOnEdgeRightGetIn	
StuckOnEdgeRightIdle	
SuccessfulWheelie	
TakeAPictureCapture	
TakeAPictureFocusing	
TapResponsePulse	
TemperatureDoubleDig	
TemperatureNegDoubleDig	

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Trigger Name	Description
TemperatureNegSingleDig	
TemperatureNegTripleDig	
TemperatureSingleDig	
TemperatureTripleDig	
TestAllLeds	
TestOffset	
TestRotation	
TextToSpeechGetIn	
TextToSpeechGetLoop	
TextToSpeechGetOut	
TimerCancelGetIn	
TimerCancelTimer	
TimerCheckTimeGetIn	
TimerCheckTimeGetOut	
TimerRing	
TimerRingGetIn	
TimerRingGetOut	
TimerSetGetIn	
TimerSetGetOut	
UnitTestAnim	
VC_IntentNeutral	
VC_ListeningGetIn	
VC_ListeningGetOut	
VC_ListeningLoop	
VC_SleepingToListeningGetIn	
VC_SleepingToListeningGetOut	
VC_SleepingToListeningLoop	
Visible	
VolumeLevel1	
VolumeLevel2	
VolumeLevel3	
VolumeLevel4	
VolumeLevel5	
WakeUp	
WakeupGetout	

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Trigger Name	Description
WeatherCondCloudy_01	
WeatherCondColdClear_01	
WeatherCondRain_01	
WeatherCondSnow_01	
WeatherCondStars_01	
WeatherCondSunny_01	
WeatherCondThunderstorms_01	
WeatherCondWindy_01	

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7.2 Behaviour IDs

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Behavior ID	Description
AcousticTestMode	
Alexa	
AlexaSignInOut	
AskForHelp	
AskForHelpOnSide	
Asleep	
BasicVoiceCommands	
BeQuietAnims	
BeQuietLoop	
BlackJack	
BlackJackGoodLuckTTS	
BlackJackHandleRTPResponses	
BlackJackHitOrStandPrompt	
BlackJackLookAtFaceInFront	
BlackJackRequestToPlay	
BlackJackRequestToPlayAgain	
BlackJackTextToSpeech	
BlackJackVoiceCommand	
CheckForAndReactToHand	
CubeTrickDispatcher	
DemoTimerUtilityCoordinator	
DevBaseBehavior	
DevImageCapture	
DevBatteryLogging	
DevCubeSpinner	
DevCubeSpinnerConsole	
DevDesignCubeLights	
DevDisplayReadingsOnFace	
DevEventSequenceCapture	
DevImageCapture_PetsAndHands	
DevPlannerTest	
DevSquawkBoxTest	
DevTestBlackjackViz	
DoATrickVoiceCommand	
FetchCubeVoiceCommand	

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Behavior ID	Description
FindFacesPhoto	
FindYourCubeVoiceCommand	
FistBumpVoiceCommand	
FrameFaces	
InterruptingVoiceReactions	
DevTestConnectToCube	
DevTestPersonDetectorBehavior	
DevTestPromptUser	
DevTouchDataCollection	
DevTurnInPlaceTest	
DevViewCubeBackpackLights	
DockingTestSimple	
FactoryCentroidExtractor	
ForceStuckOnEdge	
LiftLoadTest	
PlaypenCameraCalibration	
PlaypenDistanceSensor100mm	
PlaypenDistanceSensor300mm	
PlaypenDistanceSensor80mm	
PlaypenDriftCheck	
PlaypenDriveForwards	
PlaypenEndChecks	
PlaypenInitChecks	
PlaypenMotorCalibration	
PlaypenPickupCube	
PlaypenSoundCheck	
PlaypenTest	
PlaypenWaitToStart	
PowerSaveStressTest	
PowerSaveTest	
PuzzleMaze	
ReactToBody	
ReactToGazeDirection	
ReactToGazeDirectionSurface	
SelfTest	

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Behavior ID	Description
SelfTestButton	
SelfTestDockWithCharger	
SelfTestDriftCheck	
SelfTestDriveForwards	
SelfTestInitChecks	
SelfTestLookAtCharger	
SelfTestMotorCalibration	
SelfTestPickup	
SelfTestPutOnCharger	
SelfTestPutOnCharger2	
SelfTestScreenAndBackpack	
SelfTestSoundCheck	
SelfTestTouch	
TestStackMonitors	
ChangeEyeColor	
HowOldAreYou	
HowOldAreYouCounting	
ShowWallTime	
SingletonFindFaceInFrontWallTime	
SingletonWallTimeCoordinator	
ComeHereVoiceCommand	
ConfirmHabitat	
ConnectToCube	
CoordinateGlobalInterrupts	
CoordinateInHabitat	
CoordinateWhileHeldInPalm	
CoordinateWhileInAir	
DanceBig	
DanceForwardBackFlower	
DanceFrontRightLeftPoint	
DanceSTwoways	
DanceSwell	
DanceWiggleForwardWiggleBack	
DanceToTheBeat	
DanceToTheBeatCoordinator	

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Behavior ID	Description
DanceToTheBeatVoiceCommand	
ListenForBeats	
ListenForBeatsLong	
ListenForBeatsVoiceCommand	
DefaultTextToSpeechLoop	
DriveOffChargerCube	
DriveOffChargerFace	
DriveOffChargerRandomly	
DriveOffChargerRandomlyAnim	
DriveOffChargerStraight	
EmergencyMode	
EmergencyModeAnimDispatcher	
EmergencyModeInAir	
EmergencyModeOffCharger	
EmergencyModeTriggerWord	
GlobalInterruptions	
GreetAfterLongTime	
HabitatMutedDispatcher	
HabitatMutedVoiceCommandResponse	
HighLevelAI	
ActiveLookForFaces	
ConfirmCharger	
ConfirmCube	
Exploring	
ExploringBumpObject	
ExploringExamineObstacle	
ExploringGetIn	
ExploringReferenceHuman	
ExploringVoiceCommand	
FindCubeAndPlayKeepaway	
FistBump	
AcknowledgeCharger	
ClearChargerArea	
EmergencyModeFindAndGoToHome	
FindAndGoToHome	

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Behavior ID	Description
FindAndRequestHome	
FindHome	
FindHomeInHabitat	
GoHome	
RequestHomeBecauseStuck	
RequestToGoHome	
WiggleBackOntoChargerFromPlatform	
HeldInPalmDispatcher	
HeldInPalmResponses	
InitialHeldInPalmReaction	
ReactToJoltInPalm	
ReactToPalmTilt	
ReactToPickupFromPalm	
ReactToPutDownFromPalm	
InitialPickupAnimation	
InteractWithFaces	
InteractWithStaticCube	
InvestigateCubeConnectionGate	
InvestigateHeldCube	
MoveCube	
PlaceCubeByCharger	
RollBlockIfNotVertical	
TurnToLastFace	
Keepaway	
KnowledgeGraphQuestion	
KnowledgeGraphTTS	
LookInPlaceHeadDownInAir	
LookInPlaceHeadUp	
LookInPlaceHeadUpInAir	
MeetVictor	
MeetVictorAlreadyKnowYouPrompt	
RespondToRenameFace	
LeaveAMessage	
MessagingPlaybackTTS	
MessagingRecordTTS	

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Behavior ID	Description
PlaybackMessage	
NothingToDo_Idle	
Observing	
ObservingDriveOffCharger	
ObservingEyeContact	
ObservingFindFaces	
ObservingLookAtFaces	
ObservingLookAtFacesInAir	
ObservingOffChargerHeadOnly	
ObservingOnCharger	
ObservingOnChargerEyeContact	
ObservingOnChargerGetIn	
ObservingOnChargerGetOut	
ObservingOnChargerIdle	
ObservingOnChargerIdleAnim	
ReactToMotion	
TrackingEyeContact	
PickupCube	
PickupCubeNoInitialReaction	
CubeSpinnerConnectionGate	
CubeSpinnerLookAroundInPlace	
VectorPlaysCubeSpinner	
FetchCube	
FindCube	
FindCubeAndThen	
FindFacesFetchCube	
PlayRollBlock	
PlayWithCube	
PopAWheelie	
SingletonPounceApproachWithProx	
SingletonPounceDispatcher	
SingletonPounceTurnLeft	
SingletonPounceTurnRight	
SingletonPounceWithProx	
PutDownBlock	

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Behavior ID	Description
PutDownBlockAtPose	
PutDownDispatch_LookForFaceAndCube	
SayName	
SearchWithinBoundingBox	
ShortLookAroundForFaceAndCube	
FindHomeForSleeping	
GoToSleep	
SleepCycle	
SleepingPersonCheck	
SleepingTriggerWord	
SleepingWakeUp	
SleepingWakeUpLights	
DriveOffChargerIntoSocializing	
Socialize	
SocializeGame	
TrackCube	
TrackCubeTest	
TrackFaceTest	
GoHomeVoiceCommand	
KeepawayVoiceCommand	
LookAtMeVoiceCommand	
LookOverThereVoiceCommand	
PickUpCubeVoiceCommand	
PlayAGameVoiceCommand	
PopAWheelieVoiceCommand	
RollCubeVoiceCommand	
WhatsMyNameVoiceCommand	
WhileInAirDispatcher	
WhileInAirResponses	
WhileInAirResponsesPRDemo	
InitNormalOperation	
InitPRDemo	
IntentUnmatched	
ModeSelector	
MovementBackward	

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Behavior ID	Description
MovementForward	
MovementTurnAround	
MovementTurnLeft	
MovementTurnRight	
NoCloud	
NormalWakeUp	
NoWifi	
Onboarding	
OnboardingComeHere	
OnboardingEmulate1p0WaitForVC	
MandatoryPhysicalReactions	
OnboardingLookAtPhone	
OnboardingLookAtUser	
OnboardingLookAtUserOffCharger	
OnboardingLookAtUserOnCharger	
OnboardingPowerOff	
OnboardingTeachComeHere	
OnboardingTeachMeetVictor	
OnboardingTeachWakeWord	
OnboardingWakeUp	
PRDemoBigGreeting	
PRDemoComeHere	
PRDemoExploring	
PRDemoObserving	
PRDemoSleeping	
PRDemoStateMachine	
ProceduralTurnToMicDirection	
QuietMode	
QuietModeEmergencyModeGoHome	
ReactToAbuse	
ReactToAffirmative	
ReactToApology	
ReactToBatteryTooHotToCharge	
ReactToCliff	
ReactToCliffDuringFetch	

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Behavior ID	Description
ReactToDarkness	
ReactToFrustrationMajor	
ReactToGoodBye	
ReactToGoodMorning	
ReactToHand	
ReactToHello	
ReactToLove	
ReactToMotorCalibration	
ReactToNegative	
ReactToObstacle	
ReactToPlacedOnSlope	
ReactToPutDown	
ReactToRobotOnBack	
ReactToRobotOnFace	
ReactToRobotOnSide	
ReactToRobotShaken	
ReactToRobotShakenSnowGlobe	
ReactToSoundAsleep	
ReactToSoundAwake	
ReactToSoundDirectionAsleep	
ReactToSoundDirectionAwake	
ReactToTriggerDirectionAwake	
ReactToUncalibratedHeadAndLift	
ReactToUnexpectedMovement	
ReactToTouchPetting	
ReactToUnclaimedIntent	
ResetSafely	
SDKDefault	
SDKOverrideAll	
SeasonalHappyHolidays	
SeasonalHappyNewYear	
ShutUpAnims	
ShutUpMode	
SingletonAnticShowClock	
SingletonCancelTimer	

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Behavior ID	Description
SingletonICantDoThat	
SingletonPoweringRobotOff	
SingletonTimerAlreadySet	
SingletonTimerAntic	
SingletonTimerCheckTime	
SingletonTimerRinging	
SingletonTimerSet	
StayOnChargerUntilCharged	
StuckOnEdge	
TakeAPhotoCoordinator	
TimerRingingPRDemo	
TimerUtilityCoordinator	
TriggerWordDetected	
TriggerWordWithoutIntent	
UserDefinedBehaviorSelector	
UserDefinedBehaviorTreeConfirmNewBehavior	
UserDefinedBehaviorTreeRouter	
UserDefinedBehaviorTreeTextToSpeech	
Volume	
Wait	
WeatherCloudyGeneric	
WeatherColdClearGeneric	
WeatherRainGeneric	
WeatherSnowGeneric	
WeatherStarsGeneric	
WeatherSunnyGeneric	
WeatherThunderstormsGeneric	
WeatherWindyGeneric	
WeatherResponses	
WeatherTextToSpeech	

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7.3 Console variables

7.3.1 Console Variables

Console Variables are part of the developer build. They allow the developer to test, diagnose, and tweak (inject data into) the various modules.

This note is to help gather a description of each of console variables. This format lets us gather information on them, and help understand where they fit in.

These tables are not suitable for the TRM at this time; they may go better in the software design description in the future.

Note: the k seems to be dropped or optional in matching

A/B Testing console variables

Variable	Type	Units	Description
kForceDisableABTesting			

AIWhiteboard console variables

Variable	Type	Units	Description
kBW_PossibleObjectClose_mm			

Alexa console variables

Variable	Type	Units	Description
kAcousticTestMode			
kAlexaEnabledInAU			
kAlexaEnabledInUK			
kAlexaHackCheckForSystemClockSyncPeriod_s			
kAlexaIdleDelay_s			
kAlexaMaxIdleDelay_s			
kAllowAudioOnCharger			
kDEV_ONLY_EnableAlexaTemplateRendererStub			
kLogAlexaDirectives			
kNotchPower			

Alexa.Init console variables

Variable	Type	Units	Description
kDumpAlexaTriggerAudio			

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Alexa.Messaging console variables

Variable	Type	Units	Description
kLogAlexaMessages			
kStealAlexaWakewordAudio			

Animation console variables

Variable	Type	Units	Description
kShouldPreCacheSprites			
kEyeDartFocusValue_pix			
kIgnoreAnimWhitelist			

AnimationStreamer console variables

Variable	Type	Units	Description
kEnableBackpackLightsTrack			
kShouldDisplayPlaybackTime			

AnimationStreamer.System console variables

Variable	Type	Units	Description
kDisplayCPUThrottling			
kDisplayHighTemperature			
kDisplayMemoryPressure			
kThermalAlertTemp_C			

Audio.AnimationStream console variables

Variable	Type	Units	Description
kAudioAnimationOffset_ms			

Audio.KeepAlive console variables

Variable	Type	Units	Description
kEnableKeepAliveEyeBlinkAudioEvents			
kEnableKeepAliveEyeDartAudioEvents			
kEnableKeepAliveEyeSquintAudioEvents			

Audio.Microphone console variables

Variable	Type	Units	Description
kNoiseFloorMin			
kNoiseFloorRange			

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Audio.Procedural console variables

Variable	Type	Units	Description
kEnableHeadProceduralMovement			
kEnableLiftProceduralMovement			
kEnableTreadProceduralMovement			
kHeadCoolDown_ms			
kHeadMovementThreshold_rpms			
kLiftCoolDown_ms			
kLiftMovementThreshold_rpms			
kMaxHeadAccel_rpms2			
kMaxHeadSpeed_rpms			
kMaxLiftAccel_rpms2			
kMaxLiftSpeed_rpms			
kMaxTreadAccel_mmpms2			
kMaxTreadSpeed_mmps			
kMaxTurnSpeed_mmps			
kTreadMovementThreshold_mmps			
kTreadCoolDown_ms			

BackpackLights console variables

Variable	Type	Units	Description
kOfflineCheckFreq_ms			
kOfflineTimeBeforeLights_ms			

BasicActions.TurnTowardsObject console variables

Variable	Type	Units	Description
kInsertWaitsInTurnTowardsObjectVerify			

Behavior.BehaviorGoHome console variables

Variable	Type	Units	Description
kGoHome_VisualVerification_SaveImages			

Behavior.CheckForAndReactToSalientPoint console variables

Variable	Type	Units	Description
kCFARTSP_CooldownOverride_sec			

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BehaviorCountingAnimation console variables

Variable	Type	Units	Description
kSlowLoopBeginSize_loops			

BehaviorDanceToTheBeatCoordinator console variables

Variable	Type	Units	Description
kDancingCooldown_sec			

Behaviors.BehaviorSystemManager console variables

Variable	Type	Units	Description
kDebugBehaviorStack			

Behavior.EnrollFace console variables

Variable	Type	Units	Description
kEnrollFace_TimeoutForReLookForFace_ms			

BehaviorExploring console variables

Variable	Type	Units	Description
kExploringPostBumpReferenceProb			
kMinObjectWidthToBump_rad			
kProbReferenceOnResume			

BehaviorHighLevelAI console variables

Variable	Type	Units	Description
kTimeMultiplier			

Behavior.InteractWithFaces console variables

Variable	Type	Units	Description
kInteractWithFaces_DriveForwardIdealDist_mm			
kWiggle_ForwardDist_mm			

Behavior.InternalStatesBehavior console variables

Variable	Type	Units	Description
kDebugInternalStatesBehavior			

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Behavior.LookAroundInPlace console variables

Variable	Type	Units	Description
kVizConeOfFocus			

BehaviorPlannerTest console variables

Variable	Type	Units	Description
kCubeDistance_mm			

Behavior.PutDownBlock console variables

Variable	Type	Units	Description
kBPDB_finalHeadAngle_deg			

Behavior.PuzzleMaze console variables

Variable	Type	Units	Description
kPuzzleTimeout_sec			

Behavior.ReactToCliff console variables

Variable	Type	Units	Description
kMaxNumRobotStopsBeforeGivingUp			

Behavior.ReactToHand console variables

Variable	Type	Units	Description
kHandReaction_DriveForwardSpeed_mmps			

Behavior.ReactToPalmEdge console variables

Variable	Type	Units	Description
kMaxNumInitialReactAttemptsBeforeGivingUp			

Behavior.TakeAPhoto console variables

Variable	Type	Units	Description
kHeadAngleDeg			

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Console console variables

Variable	Type	Units	Description
kSaveModifiedConsoleVarsOnly			

CpuProfiler console variables

Variable	Type	Units	Description
kMessageProfilerDuration			
maxProcessingTimePerDrop_ms			

CubeLightDesign console variables

Variable	Type	Units	Description
kLED1_s1_red			

CubeSpinner console variables

Variable	Type	Units	Description
kAdjustHeightOfSpinnerLift			
kDedupTimeAfterLock_ms			
kIReallyReallyWantToBreakCubeSpinner			

Dev console variables

Variable	Type	Units	Description
kForceDisableAnkiDevFeatures			

DevBaseBehavior console variables

Variable	Type	Units	Description
kDevDispatchAfterShake			

DevSquawkBoxBehavior console variables

Variable	Type	Units	Description
kLiftMovementDuration_s			

DevViewLights console variables

Variable	Type	Units	Description
kCubeTriggerIdx			

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DockingMethod(B:0 T:1 H:2) console variables

Variable	Type	Units	Description
kDefaultDockingMethod			

DockingTest console variables

Variable	Type	Units	Description
kMaxNumAttempts			

DriveToActions console variables

Variable	Type	Units	Description
kEnablePredockDistanceCheckFix			

Face.KeepAlive console variables

Variable	Type	Units	Description
kKeepAliveBlink_SpacingMaxTime_ms			
kKeepAliveBlink_SpacingMinTime_ms			
kKeepAliveEyeDart_DownMinScale			
kKeepAliveEyeDart_HotSpotPositionMultiplier			
kKeepAliveEyeDart_LongDistanceThresh_pix			
kKeepAliveEyeDart_LongShiftFraction1			
kKeepAliveEyeDart_LongShiftFraction2			
kKeepAliveEyeDart_LongSquashFraction1			
kKeepAliveEyeDart_LongSquashFraction2			
kKeepAliveEyeDart_MaxDistFromCenter_pix			
kKeepAliveEyeDart_MaxDistFromCenterFocused_pix			
kKeepAliveEyeDart_MediumDistanceThresh_pix			
kKeepAliveEyeDart_MediumShiftFraction			
kKeepAliveEyeDart_MediumSquashFraction			
kKeepAliveEyeDart_OuterEyeScaleIncrease			
kKeepAliveEyeDart_ShiftLagFraction			
kKeepAliveEyeDart_SpacingMaxTime_ms			
kKeepAliveEyeDart_SpacingMinTime_ms			
kKeepAliveEyeDart_UpMaxScale			
kMaxBlinkSpacingTimeForScreenProtection_ms			

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Habitat console variables

Variable	Type	Units	Description
kDevForceBeginConfirmHabitat			

TrackingActions console variables

Variable	Type	Units	Description
kOverride_PanDuration_s			

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Face.ParameterizedFace console variables

WallTime console variables

Variable	Type	Units	Description
kProcFace_AntiAliasingFilter			
kProcFace_AntiAliasingSigmaFraction			
kProcFace_AntiAliasingSize			
kProcFace_Display			
kProcFace_EllipseDelta			
kProcFace_EnableAntiAliasing			
kProcFace_EyeLightnessMultiplier			
kProcFace_Gamma			
kProcFace_GammaType			
kProcFace_HotspotFalloff			
kProcFace_HotspotRender			
kProcFace_InterpolationType			
kProcFace_LineType			
kProcFace_NoiseMaxLightness			
kProcFace_NoiseMinLightness			
kProcFace_NoiseNumFrames			
kProcFace_NominalEyeSpacing			
ProcFace_OverrideEyeParams			
ProcFace_OverrideRightEyeParams			
ProcFace_FromLinear			
ProcFace_ToLinear			
ProcFace_DefaultScanlineOpacity			
ProcFace_NominalEyeSpacing			
ProcFace_NoiseFraction			
ProcFace_UseAntiAliasedLines			
ProcFace_GlowRender			
ProcFace_GlowSizeMultiplier			
ProcFace_GlowLightnessMultiplier			
ProcFace_GlowGaussianFilter			
ProcFace_AntiAliasingGaussianFilter			

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Face.ScanlineDistortion console variables

Variable	Type	Units	Description
kProcFaceScanline_MaxShiftNoise			
kProcFaceScanline_OffNoiseMaxWidth			
kProcFaceScanline_OffNoiseProb			

FaceInfoScreenManager console variables

Variable	Type	Units	Description
kAlexaNotificationTimeout_s			
kButtonPressDurationForShutdown_ms			
kFakeButtonPressType			
kToggleMuteTimeout_s			

GlitchLights console variables

Variable	Type	Units	Description
kGlitchLightDelay_ms			
kGlitchLightDuration_ms			

HeldInPalm.Coordinator console variables

Variable	Type	Units	Description
kMaxTimeForInitialHeldInPalmReaction_ms			

kWebvizUpdatePeriod console variables

Variable	Type	Units	Description
kWebvizUpdatePeriod			

LiftLoadTest console variables

Variable	Type	Units	Description
kNumLiftRaises			

ManualAnimationPlayback console variables

Variable	Type	Units	Description
kShouldDisplayKeyframeNumber			
kNumberOfFramesToIncrement			

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MicData console variables

Variable	Type	Units	Description
kBeatDetectorUseProcessedAudio			
kDevForceProcessState			
kMicData_ClipRecordTime_ms			
kMicData_CollectRawTriggers			
kMicData_ForceDisableMicDataProc			
kMicData_ForceEnableMicDataProc			
kMicData_QuietTimeCooldown_ms			
kMicData_SaveRawFullIntent			
kMicData_SaveRawFullIntent_WakeWordless			
kMicData_SpeakerNoiseDisablesMics			
kSaveNotches			

Network console variables

Variable	Type	Units	Description
kEnableVerboseNetworkLogging			
kMaxPingTimesToTrackOverride			
kPrintNetworkStats			
kPrintNetworkStatsTimeSpacingMS			

Network.Emulator console variables

Variable	Type	Units	Description
gUDPMaxLatency			
gUDPMinLatency			
gUDPNetEmulatorEnabled			
gUDPNetEmulatorRuntimeToggling			
gUDPRandomPacketLossPercentage			

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Network.Stats console variables

Variable	Type	Units	Description
kLogMessageLatencyOnce			
gNetStat1NumConnections			
gNetStat2LatencyAvg			
gNetStat3LatencySD			
gNetStat4LatencyMin			
gNetStat5LatencyMax			
gNetStat6PingArrivedPC			
gNetStat7ExtQueuedAvg_ms			
gNetStat8ExtQueuedMin_ms			
gNetStat9ExtQueuedMax_ms			
gNetStatAQueuedAvg_ms			
gNetStatBQueuedMin_ms			
gNetStatCQueuedMax_ms			
kNetConnStatsUpdate			

OSState.DiskInfo console variables

Variable	Type	Units	Description
kHighDiskPressureMultiple			
kMediumDiskPressureMultiple			

OSState.MemoryInfo console variables

Variable	Type	Units	Description
kHighMemPressureMultiple			
kMediumMemPressureMultiple			

OSState.Temperature console variables

Variable	Type	Units	Description
kFakeCpuTemperature_degC			
kSendFakeCpuTemperature			

OSState.Timezone console variables

Variable	Type	Units	Description
kOSState_FakeNoTime			
kOSState_FakeNoTimezone			

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OSState.WifiInfo console variables

Variable	Type	Units	Description
kHighWifiErrorRate			
kMediumWifiErrorRate			

SpeechRecognizer console variables

Variable	Type	Units	Description
kSuppressTriggerResponse			

SpeechRecognizer.Alexa console variables

Variable	Type	Units	Description
kAlexaRecognizerModel			
kDefaultDetectThreshold			
kForceRunNotchDetector			
kSaveRawMicInput			

SpeechRecognizer.AlexPlayback console variables

Variable	Type	Units	Description
kAlexaPlaybackRecognizerModel			
kPlaybackRecognizerSampleCountThreshold			

SpeechRecognizer.Vector console variables

Variable	Type	Units	Description
kVectorRecognizerModel			
kVectorRecognizerModelSensitivity			

StayOnCargerUntilCharged console variables

Variable	Type	Units	Description
kSafeguardTimeout_s			

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TextToSpeech console variables

Variable	Type	Units	Description
kEnablePausePrams			
kLeadingSilence_ms			
kMinPlayableFrames			
kPauseBracket_ms			
kPauseComma_ms			
kPausePunctuation_ms			
kPauseSemicolon_ms			
kPauseSpelling_ms			
kTrailingSilence_ms			
kVoicePitch			
kVoiceShaping			
kVoiceSpeed			
kWriteTTSFile			

Vision.GazeDirection console variables

Variable	Type	Units	Description
kFaceDirectedAtRobotMinXThres_mm			

VoiceMessage console variables

Variable	Type	Units	Description
kRequireKnownUser			

WallTime console variables

Variable	Type	Units	Description
kFakeWallTimeIsSynced			

Not Yet Classified

Variable	Type	Units	Description

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7.4 Channels

I'm not sure what these are. They may be part of the logging of information and routing it internally and to a log file.

This note is to help gather a description of each of the channels. This format lets us gather information on them, and help understand where they fit in.

Channel	Description
Actions	
AIWhiteboard	
Alexa	
Audio	
Behaviors	
BlockPool	
BlockWorld	
CpuProfiler	
FaceRecognizer	
FaceWorld	
JdocsManager -- the cloud storage?	
Keyboard	
MessageProfiler	
Microphones	
NeuralNets	
PerfMetric	
PoseConfirmer	
SpeechRecognizer	
VisionComponent	
VisionSystem	

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7.5 Software Classes

Vector's software has a lot of modules -- I'm assuming these are C++ classes. They are not all annotated or understood. Here are some that we've spotted:

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Module	Description
AIComponent	
AIWhiteboard	
AccountSettingsManager	
ActionList	
ActionQueue	
Actions	
ActiveFeatureComponent	
AddActiveObject	
AdvertisementService	
AkAlsaSink	
Alexa	
AlexaAudioInput	
AlexaClient	
AlexaComponent	
AlexaImpl	
AlexaMediaPlayer	
AlexaObserver	
AlexaPlaybackRecognizerComponent	
AlignWithObjectAction	
AnimComms	
AnimContext	
AnimEngine	
AnimProcessMessages	
Animation	
AnimationAudioClient	
AnimationComponent	
AnimationGroup	
AnimationGroupContainer	
AnimationGroupEntry	
AnimationStreamer	
Animations	
AnkiLab	
AppCubeConnectionSubscriber	
Array2d	
AttentionTransferComponent	

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Module	Description
AudienceTags	
Audio	
AudioBehaviorStackListener	
AudioEngineController	
AudioEventGroupRef	
AudioMultipleFileLocation	
AudioMultiplexer	
AudioMuxClient	
AudioScene	
AudioSceneEvent	
AudioSceneParameter	
AudioSceneStateGroup	
AudioWaveFileReader	
BEIConditionFactory	
BEIConditionMessageHelper	
BackpackLightAnimationContainer	
BackpackLightComponent	
BackpackLightsKeyFrame	
BackupOntoChargerAction	
Battery	
BatteryComponent	
BeatDetector	
BeatDetectorComponent	
Behavior	
BehaviorAcknowledgeFace	
BehaviorAcknowledgeObject	
BehaviorAlexa	
BehaviorAnimSequenceWithObject	
BehaviorAskForHelp	
BehaviorBlackJack	
BehaviorBumpObject	
BehaviorClearChargerArea	
BehaviorComponent	
BehaviorConfirmObject	
BehaviorConnectToCube	

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Module	Description
BehaviorCoordinateInHabitat	
BehaviorCoordinateWeather	
BehaviorCountingAnimation	
BehaviorDanceToTheBeat	
BehaviorDanceToTheBeatCoordinator	
BehaviorDevCubeSpinnerConsole	
BehaviorDevSquawkBoxTest	
BehaviorDevTurnInPlaceTest	
BehaviorDispatchAfterShake	
BehaviorDispatcherPassThrough	
BehaviorDispatcherQueue	
BehaviorDispatcherRandom	
BehaviorDispatcherStrictPriorityWithCooldown	
BehaviorDisplayWallTime	
BehaviorDisplayWeather	
BehaviorDockingTest	
BehaviorDockingTestSimple	
BehaviorDriveOffCharger	
BehaviorEnrollFace	
BehaviorExploring	
BehaviorExploringExamineObstacle	
BehaviorEyeColorVoiceCommand	
BehaviorFactoryCentroidExtractor	
BehaviorFetchCube	
BehaviorFindCube	
BehaviorFindFaceAndThen	
BehaviorFindHome	
BehaviorFistBump	
BehaviorGoHome	
BehaviorGreetAfterLongTime	
BehaviorHowOldAreYou	
BehaviorInspectCube	
BehaviorInteractWithFaces	
BehaviorKeepaway	
BehaviorKnowledgeGraphQuestionc	

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Module	Description
BehaviorLiftLoadTest	
BehaviorLookForFaceAndCube	
BehaviorObservingLookAtFaces	
BehaviorObservingWithoutTurn	
BehaviorOnboardingCoordinator	
BehaviorPRDemo	
BehaviorPlaceCubeByCharger	
BehaviorPlaypenCameraCalibration	
BehaviorPlaypenDistanceSensor	
BehaviorPlaypenDriftCheck	
BehaviorPlaypenEndChecks	
BehaviorPlaypenPickupCube	
BehaviorPlaypenTest	
BehaviorPopAWheelie	
BehaviorPounceOnMotion	
BehaviorPoweringRobotOff	
BehaviorPromptUserForVoiceCommand	
BehaviorPuzzleMaze	
BehaviorQuietModeCoordinator	
BehaviorReactToBody	
BehaviorReactToCliff	
BehaviorReactToCubeTap	
BehaviorReactToDarkness	
BehaviorReactToHand	
BehaviorReactToMicDirection	
BehaviorReactToMotion	
BehaviorReactToMotorCalibration	
BehaviorReactToPlacedOnSlope	
BehaviorReactToRobotOnBack	
BehaviorReactToRobotOnFace	
BehaviorReactToTouchPetting	
BehaviorReactToUncalibratedHeadAndLift	
BehaviorReactToUnexpectedMovement	
BehaviorReactToVoiceCommand	
BehaviorRequestToGoHome	

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Module	Description
BehaviorResetState	
BehaviorRespondToRenameFace	
BehaviorRobustChargerObservation	
BehaviorSDKInterface	
BehaviorSDKLock	
BehaviorSayName	
BehaviorSelfTest	
BehaviorSelfTestDockWithCharger	
BehaviorSelfTestDriftCheck	
BehaviorSelfTestLookAtCharger	
BehaviorSleepCycle	
BehaviorSystem	
BehaviorSystemManager	
BehaviorTakeAPhotoCoordinator	
BehaviorTextToSpeechLoop	
BehaviorTrackCube	
BehaviorTrackFace	
BehaviorUserDefinedBehaviorTreeRouter	
BehaviorUserDefinedBehaviorTreeSelector	
BehaviorVolume	
Behaviors	
BehaviorsBootLoader	
BlackJackGame	
BlackJackSimulation	
BlackJackVisualizer	
Block	
BlockPool	
BlockTapFilterComponent	
BlockWorld	
BodyMotionKeyFrame	
CalculateExperimentHashBucket	
Camera	
CameraCalibrator	
CameraParamsController	
CannedAnimationContainer	

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Module	Description
CannedAnimationLoader	
CardSimulation	
CarryingComponent	
ChannelFilter	
CladEnumToStringMap	
CliffAlignToWhiteAction	
CliffSensor	
CliffSensorComponent	
ColorRGBA	
CompositeImage	
CompositeImageLayer	
CompoundActionParallel	
CompoundActionSequential	
ComputePlacementApproachAngle	
ComputePreActionPoseDistThreshold	
ConditionCompound	
ConditionEngineErrorCodeReceived	
ConditionIlluminationDetected	
ConditionMotionDetected	
ConfirmHabitat	
ConnectionFlow	
Console	
ConsoleSystem	
Context	
ContinuityComponent	
CoreTech	
CozmoAPI	
CozmoAnimMain	
CozmoAudioController	
CozmoEngine	
CozmoGameImpl	
CropScheduler	
CubeAccelComponent	
CubeBatteryComponent	
CubeComms	

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Module	Description
CubeCommsComponent	
CubeConnectionCoordinator	
CubeInteractionTracker	
CubeLightAnimationContainer	
CubeLightAnimationHelpers	
CubeLightComponent	
CubeLightController	
CubeSpinnerGame	
CustomObject	
DTRawPixelsClassifier	
DanceAnimMetadata	
DancePhrase	
DanceSession	
DasToSdkHandler	
DasToSdkManager	
DataPlatform	
Demo	
DevEventSequenceCapture	
DoleAvailableAnimations	
DriveAndFlipBlockAction	
DriveStraightAction	
DriveToActions	
DriveToFlipBlockPoseAction	
DriveToObjectAction	
DriveToPlaceCarriedObjectAction	
DriveToPlaceRelObjectAction	
DriveToPoseAction	
DrivingAnimationHandler	
EmotionAffector	
EmotionEvent	
EmotionEventMapper	
EmotionScorer	
EngineRobotAudioClient	
EngineRobotAudioInput	
EnrolledFaceEntry	

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Module	Description
EraseAllFaces	
Error	
EventKeyFrame	
Expected	
Experiment	
FaceDisplay	
FaceInfoScreenManager	
FaceLayerManager	
FacePlantAction	
FaceRecognizer	
FaceTrackerImpl	
FaceWorld	
Factory	
FactoryTestLogger	
FeatureGate	
FileTransfer	
FindFaces	
FlipBlockAction	
FormatBytesAsHex	
GMMRawPixelsClassifier	
GetAnimationName	
GetBroadcastAddressFromIfAddr	
GetIPv6LinkLocalAddress	
GetLocalIpAddress	
GetLocalIpAddressFromIfAddr	
GetLocalIpv6LinkLocalAddress	
GetMaxOffsetObjectStillVisible	
GetNextAlbumEntryToUse	
GetNextPacketFromEngine	
GetNextPacketFromRobot	
GetRecognitionData	
GetSerializedAlbum	
GoogleBreakpad	
GraphEvaluator2d	
GroundPlaneClassifier	

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Module	Description
HabitatDetectorComponent	
HandleAnimationEvent	
HandleMotorAutoEnabled	
HandleMotorCalibration	
HashStringTable	
HeldInPalmTracker	
HueSatWrapper	
IAction	
IActionRunner	
IBEICondition	
IBehavior	
IBehaviorPlaypen	
IBehaviorSelfTest	
ICompoundAction	
IConditionUserIntent	
ICozmoBehavior	
IDockAction	
IDriveToInteractWithObject	
IFormattedLoggerProvider	
IKeyFrame	
INeuralNetMain	
INeuralNetModel	
IPathPlanner	
IPv6	
IScoredBehavior	
ISensorComponent	
ITrackAction	
ITrackLayerManager	
IVisuallyVerifyAction	
Id	
IdCount	
Image	
ImageBase	
ImageBrightnessHistogram	
ImageCache	

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Module	Description
ImageSaver	
ImageSensor	
ImuComponent	
InternalStatesBehavior	
Interruption	
IsCloseEnoughToPreActionPose	
IsExternalSdkConnection	
JdocsManager	
JsonTools	
KnowledgeGraph	
KnownMarker	
LOG	
LaserPointDetector	
LinearClassifier	
LocalUdpSocketComms	
Locale	
LocaleComponent	
Location	
Looking	
LoopBoundOverflow	
MapComponent	
Marker	
MarkerDetector	
Mask	
MenuConsoleChannel	
Message	
MicComponent	
MicDataInfo	
MicDataProcessor	
MicDataSystem	
MicDirectionHistory	
MicTriggerConfig	
Microphones	
MinimalAnglePlanner	
Mood	

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Module	Description
MoodDecayEvaulator	
MoodManager	
MoodScorer	
MountChargerAction	
MoveHeadToAngleAction	
MoveLiftToAngleAction	
MoveLiftToHeightAction	
Movement	
MovementComponent	
MultiClientComms	
MusicConductor	
NVStorage	
NVStorageComponent	
NamedColors	
NativeAnkiUtilConsoleCallFunction	
NativeAnkiUtilConsoleIsDefaultValue	
NativeAnkiUtilConsoleResetValueToDefault	
NativeAnkiUtilConsoleSetValueWithString	
NativeAnkiUtilConsoleToggleValue	
NetEmulatorUDPSocket	
Network	
NeuralNetModel	
NeuralNetParams	
NeuralNetRunner	
NeuralNets	
ObjectInteractionInfoCache	
ObservableObject	
ObservableObjectLibrary	
ObservableObjectsLibrary	
OffboardModel	
OverheadMap	
PackMaskedId	
PackMaskedIds	
PanAndTiltAction	
ParamTraits	

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Module	Description
PathComponent	
PathDolerOuter	
PerfMetric	
PetTracker	
PhotographyManager	
PickupObjectAction	
PlaceObjectOnGroundAction	
PlaceRelObjectAction	
Planner	
PlayAnimationAction	
PopAWheelieAction	
Pose3d	
PoseBase	
PowerStateManager	
PowerStates	
PreActionPose	
ProceduralFace	
ProcessRegistrationMsg	
ProxSensorComponent	
PublicStateBroadcast	
PublicStateBroadcaster	
Puzzle	
QuadTree	
QuadTreeNode	
QuestEngine	
Ran	
RandomGenerator	
RandomVectorSampler	
ReactionStrategyFacePositionUpdate	
ReadBMP	
RecentOccurrenceTracker	
RecognizeFace	
Rectangle	
RegisterNewUser	
RejectIfChargerOutOfView	

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Module	Description
RejectIfWouldCrossCliff	
ReliableConnection	
ReliableTransport	
RemoveUser	
RequestAvailableAnimations	
ReselectingLoopAnimationAction	
RetryWrapperAction	
Robot	
RobotActionParams	
RobotAudioKeyFrame	
RobotConnectionManager	
RobotDataLoader	
RobotEventHandler	
RobotHealthReporter	
RobotImplMessaging	
RobotInitialConnection	
RobotManager	
RobotState	
RobotStateHistory	
RobotStats	
RobotStatsTracker	
RollObjectAction	
RollingShutterCorrector	
RotationMatrixBase	
RotationVector3d	
SDKComponent	
SayNameProbabilityTable	
SayTextAction	
SdkAudioComponent	
SdkComponent	
SdkLock	
SendPacketToRobot	
SetSerializedAlbum	
SetSockOpt	
SetThreadPriority	

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Module	Description
Setting	
SettingsCommManager	
SettingsManager	
ShowAudioStreamStateManager	
Shutting	
SimpleMoodScorer	
SleepTracker	
SoundbankBundleInfo	
SoundbankLoader	
SpeechRecognizer	
SpeechRecognizerPryonLite	
SpeechRecognizerSystem	
SpeechRecognizerTHF	
SpeedChooser	
SpriteCache	
SpriteEntry	
SpritePathMap	
SpriteSequence	
SpriteSequenceContainer	
SpriteSequenceKeyFrame	
SpriteSequenceLoader	
SpriteWrapper	
StandardWaveDataContainer	
Starting	
StaticMoodData	
Stopping	
StreamingAnimationModifier	
StreamingWaveDataInstance	
TFLiteLogReporter	
TFLiteModel	
TId	
TextToSpeech	
TextToSpeechComponent	
TextToSpeechCoordinator	
TextToSpeechProvider	

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Module	Description
TextToSpeechProviderImpl	
TimerUtility	
TouchBaselineCalibrator	
TouchSensor	
TouchSensorComponent	
Track	
TrackFaceAction	
TrackGroundPointAction	
TrackLayerManager	
TrackObjectAction	
TrackPetFaceAction	
TrackpetFaceAction	
TransportAddress	
TriggerAnimationAction	
TriggerEmotionEvent	
TurnInPlaceAction	
TurnTowardsFaceAction	
TurnTowardsObjectAction	
TurnTowardsPoseAction	
UDPTransport	
UdpSocketComms	
UiComms	
UiMessageHandler	
Undistorter	
Unfiltered	
UnpackMaskedIds	
Update	
UpdateExistingAlbumEntry	
UpdateRecognitionData	
UseLoadedAlbumAndEnrollData	
UseLoadedAlbumAndEnrollmentData	
User	
UserDefinedBehaviorTreeComponent	
UserEntitlementsManager	
UserIntentComponent	

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Module	Description
UserIntentMap	
Util	
VariableSnapshotComponent	
VerifyDecayGraph	
VisionComponent	
VisionModeSchedule	
VisionProcessingResult	
VisionScheduleMediator	
VisionSystem	
VisuallyVerifyObjectAction	
VizManager	
VoiceMessage	
VoiceMessageSystem	
WeatherIntentParser	
WwiseComponent	
XYPlanner	

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7.6 Source File referenced in the binaries

The following source code files were referenced in the binaries:

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File
../../../animProcess/src/cozmoAnim/alexa/alexa.cpp
../../../animProcess/src/cozmoAnim/alexa/alexaClient.cpp
../../../animProcess/src/cozmoAnim/alexa/alexaImpl.cpp
../../../animProcess/src/cozmoAnim/alexa/media/alexaMediaPlayer.cpp
../../../animProcess/src/cozmoAnim/animation/animationStreamer.cpp
../../../animProcess/src/cozmoAnim/audio/sdkAudioComponent.cpp
../../../animProcess/src/cozmoAnim/faceDisplay/faceInfoScreenManager.cpp
../../../animProcess/src/cozmoAnim/micData/micDataSystem.cpp
../../../animProcess/src/cozmoAnim/micData/micImmediateDirection.cpp
../../../animProcess/src/cozmoAnim/showAudioStreamStateManager.cpp
../../../animProcess/src/cozmoAnim/speechRecognizer/speechRecognizerTHFSimple.cpp
../../../cannedAnimLib/baseTypes/keyframe.cpp
../../../cannedAnimLib/baseTypes/track.h
../../../cannedAnimLib/spriteSequences/spriteSequenceLoader.cpp
../../../coretech/common/engine/math/pose.cpp
../../../coretech/common/engine/math/poseBase_impl.h
../../../coretech/common/engine/math/poseOriginList.cpp
../../../coretech/common/engine/math/poseTreeNode.h
../../../coretech/common/engine/utils/recentOccurrenceTracker.cpp
../../../coretech/common/robot/array2d.h
../../../coretech/common/robot/arrayPatterns.h
../../../coretech/common/robot/arraySlices.h
../../../coretech/common/robot/interpolate.h
../../../coretech/common/robot/matrix.h
../../../coretech/common/robot/memory.cpp
../../../coretech/common/robot/sequences.h
../../../coretech/common/robot/serialize.h
../../../coretech/vision/engine/camera.cpp
../../../coretech/vision/engine/enrolledFaceEntry.cpp
../../../coretech/vision/engine/faceRecognizer_okao.cpp
../../../coretech/vision/engine/faceTrackerImpl_okao.cpp
../../../coretech/vision/engine/imageBuffer/imageBuffer.cpp
../../../coretech/vision/engine/imageCompositor.cpp
../../../coretech/vision/engine/markerDetector.cpp
../../../coretech/vision/engine/undistorter.cpp

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File
../../../coretech/vision/robot/computeCharacteristicScale.cpp
../../../coretech/vision/robot/computeCharacteristicScale_binomial.cpp
../../../coretech/vision/robot/computeQuadrilaterals.cpp
../../../coretech/vision/robot/connectedComponents.h
../../../coretech/vision/robot/detectFiducialMarkers.cpp
../../../coretech/vision/robot/fiducialMarkers.cpp
../../../coretech/vision/robot/filtering.cpp
../../../coretech/vision/robot/histogram.cpp
../../../coretech/vision/robot/imageProcessing.h
../../../coretech/vision/robot/integralImage.cpp
../../../coretech/vision/robot/laplacianPeaks.cpp
../../../coretech/vision/robot/nearestNeighborLibrary.cpp
../../../coretech/vision/robot/quadRefinement.cpp
../../../coretech/vision/robot/traceBoundary.cpp
../../../coretech/vision/robot/transformations.cpp
../../../coretech/vision/shared/compositeImage/compositeImage.cpp
../../../coretech/vision/shared/compositeImage/compositeImageBuilder.cpp
../../../coretech/vision/shared/compositeImage/compositeImageLayer.cpp
../../../coretech/vision/shared/hueSatWrapper.cpp
../../../coretech/vision/shared/spriteCache/spriteWrapper.cpp
../../../coretech/vision/shared/spritePathMap.cpp
../../../coretech/vision/shared/spriteSequence/spriteSequence.cpp
../../../cubeBleClient/cubeBleClient.cpp
../../../engine/actions/actionContainers.cpp
../../../engine/actions/basicActions.cpp
../../../engine/actions/dockActions.cpp
../../../engine/actions/trackGroundPointAction.cpp
../../../engine/aiComponent/aiWhiteboard.cpp
../../../engine/aiComponent/alexaComponent.cpp
../../../engine/aiComponent/behaviorComponent/activeBehaviorIterator.cpp
../../../engine/aiComponent/behaviorComponent/asyncMessageGateComponent.cpp
../../../engine/aiComponent/behaviorComponent/behaviorComponentMessageHandler.cpp
../../../engine/aiComponent/behaviorComponent/behaviorContainer.h
../../../engine/aiComponent/behaviorComponent/behaviorExternalInterface/behaviorEventComponent.cpp
../../../engine/aiComponent/behaviorComponent/behaviorExternalInterface/behaviorExternalInterface.cpp

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File
../../../engine/aiComponent/behaviorComponent/behaviorStack.cpp
../../../engine/aiComponent/behaviorComponent/behaviorSystemManager.cpp
../../../engine/aiComponent/behaviorComponent/behaviorTimers.cpp
../../../engine/aiComponent/behaviorComponent/behaviorTypesWrapper.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/alexa/behaviorAlexa.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/animationWrappers/behaviorAnimGetInLoop.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/animationWrappers/behaviorAnimSequence.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/animationWrappers/behaviorAnimSequenceWithFace.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/animationWrappers/behaviorCountingAnimation.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/animationWrappers/behaviorTextToSpeechLoop.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/attentionTransfer/behaviorAttentionTransferIfNeeded.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/basicWorldInteractions/behaviorDriveOffCharger.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/basicWorldInteractions/behaviorInteractWithFaces.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/behaviorHighLevelAI.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/behaviorLookAroundInPlace.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/behaviorResetState.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/behaviorStayOnChargerUntilCharged.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/blackjack/behaviorBlackJack.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/blackjack/blackJackVisualizer.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/coordinators/behaviorCoordinateWhileHeldInPalm.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/coordinators/behaviorCoordinateWhileInAir.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/coordinators/behaviorQuietModeCoordinator.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/cubeSpinner/behaviorVectorPlaysCubeSpinner.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/danceToTheBeat/behaviorDanceToTheBeat.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/devBehaviors/behaviorDevViewCubeBackpackLights.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/devBehaviors/behaviorDispatchAfterShake.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/devBehaviors/behaviorReactToBody.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/dispatch/behaviorDispatcherRerun.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/dispatch/behaviorDispatcherScoring.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/dispatch/behaviorDispatcherStrictPriorityWithCooldown.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/dispatch/iBehaviorDispatcher.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/freeplay/putDownDispatch/behaviorLookForFaceAndCube.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/freeplay/userInteractive/behaviorPuzzleMaze.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/habitat/behaviorConfirmHabitat.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/iCozmoBehavior.cpp

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File
../../../engine/aiComponent/behaviorComponent/behaviors/internalStatesBehavior.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/meetCozmo/behaviorEnrollFace.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/meetCozmo/behaviorRespondToRenameFace.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/photoTaking/behaviorAestheticallyCenterFaces.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/photoTaking/behaviorTakeAPhotoCoordinator.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/prDemo/behaviorPRDemoBase.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/reactions/behaviorCheckForAndReactToSalientPoint.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/reactions/behaviorReactToCliff.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/reactions/behaviorReactToDarkness.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/reactions/behaviorReactToMotion.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/reactions/behaviorReactToPutDown.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/reactions/behaviorReactToUnexpectedMovement.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/reactions/behaviorReactToVoiceCommand.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/robotDrivenDialog/behaviorPromptUserForVoiceCommand.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/sdkBehaviors/behaviorSDKInterface.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/simpleFaceBehaviors/behaviorDriveToFace.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/simpleFaceBehaviors/behaviorFindFaceAndThen.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/simpleFaceBehaviors/behaviorSayName.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/sleeping/behaviorSleepCycle.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/timer/behaviorProceduralClock.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/timer/behaviorTimerUtilityCoordinator.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/timer/behaviorWallTimeCoordinator.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/userDefinedBehaviorTree/behaviorUserDefinedBehaviorSelector.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/victor/behaviorReactToTouchPetting.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/victor/behaviorReactToUnclaimedIntent.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/victor/behaviorTrackFace.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/weather/behaviorCoordinateWeather.cpp
../../../engine/aiComponent/behaviorComponent/behaviors/weather/behaviorDisplayWeather.cpp
../../../engine/aiComponent/behaviorComponent/behaviorsBootLoader.cpp
../../../engine/aiComponent/behaviorComponent/iBehavior.cpp
../../../engine/aiComponent/behaviorComponent/stackMonitors/stackCycleMonitor.cpp
../../../engine/aiComponent/behaviorComponent/userDefinedBehaviorTreeComponent/userDefinedBehaviorTreeComponent.cpp
../../../engine/aiComponent/behaviorComponent/userIntentComponent.cpp
../../../engine/aiComponent/behaviorComponent/userIntentMap.cpp
../../../engine/aiComponent/behaviorComponent/weatherIntents/weatherConditionRemaps.cpp

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File
../../../engine/aiComponent/beiConditions/beiConditionFactory.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionAnyStimuli.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionBatteryLevel.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionBecameTrueThisTick.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionBehaviorTimer.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionCliffDetected.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionCompound.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionEmotion.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionFeatureGate.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionObjectKnown.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionOffTreadsState.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionProxInRange.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionRobotPitchInRange.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionRobotRollInRange.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionSalientPointDetected.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionSettingsUpdatePending.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionSimpleMood.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionTimedDedup.cpp
../../../engine/aiComponent/beiConditions/conditions/conditionTimerInRange.cpp
../../../engine/aiComponent/beiConditions/conditions/iConditionUserIntent.cpp
../../../engine/aiComponent/timerUtility.cpp
../../../engine/block.cpp
../../../engine/blockWorld/blockWorld.cpp
../../../engine/comms/robotConnectionData.cpp
../../../engine/components/animationComponent.cpp
../../../engine/components/battery/batteryComponent.cpp
../../../engine/components/cubes/cubeCommsComponent.cpp
../../../engine/components/cubes/cubeConnectionCoordinator.cpp
../../../engine/components/cubes/cubeInteractionTracker.cpp
../../../engine/components/cubes/cubeLights/cubeLightAnimationHelpers.cpp
../../../engine/components/mics/beatDetectorComponent.cpp
../../../engine/components/pathComponent.cpp
../../../engine/components/powerStateManager.cpp
../../../engine/components/sdkComponent.cpp
../../../engine/components/variableSnapshot/variableSnapshotComponent.h

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../../../engine/components/visionComponent.cpp
../../../engine/drivingAnimationHandler.cpp
../../../engine/faceWorld.cpp
../../../engine/moodSystem/emotion.cpp
../../../engine/moodSystem/moodDecayEvaluator.cpp
../../../engine/moodSystem/moodManager.cpp
../../../engine/moodSystem/staticMoodData.cpp
../../../engine/navMap/mapComponent.cpp
../../../engine/petWorld.cpp
../../../engine/robot.cpp
../../../engine/robot.h
../../../engine/robotDataLoader.cpp
../../../engine/vision/imageSaver.cpp
../../../engine/vision/visionSystem.cpp
../../../generated/proto/external_interface/alexa.pb.cc
../../../generated/proto/external_interface/behavior.pb.cc
../../../generated/proto/external_interface/cube.pb.cc
../../../generated/proto/external_interface/messages.pb.cc
../../../generated/proto/external_interface/nav_map.pb.cc
../../../generated/proto/external_interface/response_status.pb.cc
../../../generated/proto/external_interface/settings.pb.cc
../../../generated/proto/external_interface/shared.pb.cc
../../../lib/das-client/src/DAS.cpp
../../../lib/das-client/src/dasAppender.cpp
../../../lib/util/source/anki/util/../util/cladHelpers/cladEnumToStringMap.h
../../../lib/util/source/anki/util/../util/entityComponent/componentWrapper.h
../../../lib/util/source/anki/util/../util/entityComponent/dependencyManagedEntity.h
../../../lib/util/source/anki/util/../util/entityComponent/entity.h
../../../lib/util/source/anki/util/../util/entityComponent/iDependencyManagedComponent.h
../../../lib/util/source/anki/util/entityComponent/dependencyManagedEntity.h
../../../lib/util/source/anki/util/random/randomIndexSampler.cpp
../../../platform/switchboard/anki-wifi/connmanbus.c
pffft.cpp
randombytes/randombytes.c
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/gateway/config_linux.go

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File
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/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/anki/jdocs/server.go
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/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/anki/log/das.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/anki/log/log.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/anki/log/log_vicos.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/anki/logcollector/cladhandler.go
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/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/anki/robot/error.go
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/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/anki/robot/loguploader/loguploader.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/anki/token/accessor.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/anki/token/client.go

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File
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/anki/token/errorhandler.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/anki/token/handlers.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/anki/token/identity/getcert_vicos.go
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/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/anki/voice/stream/api.go
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/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/anki/voice/stream/opts.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/anki/voice/stream/opts_vicos.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/github.com/anki/opus-go/libopus/decoder.go
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/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/github.com/anki/opus-go/ogg/ogg.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/github.com/anki/opus-go/opus/header.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/github.com/anki/opus-go/opus/opus.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/github.com/anki/sai-chipper-voice/client/chipper/chipper.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/github.com/anki/sai-chipper-voice/client/chipper/options.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/github.com/anki/sai-chipper-voice/proto/anki/chipperpb/chipperpb.pb.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/github.com/anki/sai-go-util/testutils/testtime/time.go
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/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/github.com/anki/sai-token-service/model/token.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/github.com/anki/sai-token-service/proto/tokenpb/token.pb.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/go/src/github.com/aws/aws-sdk-go/aws/awserr/error.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/process/main.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/cloud/process/platform_vicos.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/cladgo/src/clad/cloud/common.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/cladgo/src/clad/cloud/docs.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/cladgo/src/clad/cloud/logcollector.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/cladgo/src/clad/cloud/mic.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/cladgo/src/clad/cloud/token.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/cladgo/src/clad/gateway/messageExternalToRobot.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/cladgo/src/clad/gateway/messageRobotToExternal.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/cladgo/src/clad/gateway/shared.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/cladgo/src/clad/gateway/switchboard.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/go/src/proto/external_interface/alexa.pb.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/go/src/proto/external_interface/behavior.pb.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/go/src/proto/external_interface/cube.pb.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/go/src/proto/external_interface/extensions.pb.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/go/src/proto/external_interface/external_interface.pb.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/go/src/proto/external_interface/external_interface.pb.gw.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/go/src/proto/external_interface/messages.pb.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/go/src/proto/external_interface/nav_map.pb.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/go/src/proto/external_interface/response_status.pb.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/go/src/proto/external_interface/settings.pb.go
/mnt/devhomes/build/work/83941694d19f355d/anki/victor/generated/go/src/proto/external_interface/shared.pb.go
_cgo_gotypes.go

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7.6.1 Signal Essence files

{Am I the only one who things "Signal Essence" sounds like a perfume name?}

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File
../../../EXTERNALS/anki-thirdparty/signalEssence/v008/vicos/project/anki_victor/mmif_proj.c
../../../EXTERNALS/anki-thirdparty/signalEssence/v008/vicos/project/anki_victor/policy_actions.c
../../../EXTERNALS/anki-thirdparty/signalEssence/v008/vicos/project/anki_victor_vad/nfbin_f32_anki.c
../../../EXTERNALS/anki-thirdparty/signalEssence/v008/vicos/project/anki_victor_vad/svad.c
../../../EXTERNALS/opencv/vicos/include/opencv2/core/mat.inl.hpp
../../../se_lib/aec_common.c
../../../se_lib/aec_msu.c
../../../se_lib/aec_pbfd.c
../../../se_lib/aec_stereo.c
../../../se_lib/aec_tapered_wts.c
../../../se_lib/aec_td.c
../../../se_lib/aecmonitor.c
../../../se_lib/avepower_i16.c
../../../se_lib/buffer_composer.c
../../../se_lib/cl_agc.c
../../../se_lib/cl_agc_i16.c
../../../se_lib/conv.c
../../../se_lib/dcremove.c
../../../se_lib/dcremove_f32.c
../../../se_lib/decimate31.c
../../../se_lib/downsampn.c
../../../se_lib/fdanalyze.c
../../../se_lib/fdechomodel.c
../../../se_lib/fdemphasis.c
../../../se_lib/fdsearch.c
../../../se_lib/fdsearch_winner.c
../../../se_lib/float_dft.c
../../../se_lib/float_dft_fftpack.c
../../../se_lib/float_dft_pffft.c
../../../se_lib/frdelay.c
../../../se_lib/gainest.c
../../../se_lib/highpass_filter_array.c
../../../se_lib/interpn.c
../../../se_lib/leakyave.c
../../../se_lib/lec.c

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File
../../../se_lib/lrhpf.c
../../../se_lib/meta_aec.c
../../../se_lib/meta_fda.c
../../../se_lib/mmfx.c
../../../se_lib/mmfxcalibactions.c
../../../se_lib/mmfxspatialfilter.c
../../../se_lib/mmif_helper.c
../../../se_lib/mmpreprocessor.c
../../../se_lib/mmvalidate.c
../../../se_lib/morpho.c
../../../se_lib/multiaec.c
../../../se_lib/multichan_delay.c
../../../se_lib/multichan_delay_f32.c
../../../se_lib/narrowband_noisegen.c
../../../se_lib/nfbin_f32.c
../../../se_lib/nrgainv.c
../../../se_lib/output_injector.c
../../../se_lib/ref_proc.c
../../../se_lib/rfir.c
../../../se_lib/rfir_f.c
../../../se_lib/sampledelayqueue.c
../../../se_lib/sampledelayqueue_f32.c
../../../se_lib/sat_detector.c
../../../se_lib/scratch_mem.c
../../../se_lib/se_crossover.c
../../../se_lib/se_dft.c
../../../se_lib/se_dft_fftpack.c
../../../se_lib/se_dft_fxp.c
../../../se_lib/se_dft_pffft.c
../../../se_lib/se_dft_qf.c
../../../se_lib/se_diag.c
../../../se_lib/se_nr.c
../../../se_lib/se_rcv.c
../../../se_lib/subbandsplitter.c
../../../se_lib/system_tests.c

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File
../../../se_lib/tdinterp.c
../../../se_lib/trackfilters.c
../../../se_lib/upsamplen.c
../../../se_lib/vadd.c
../../../se_lib/vavepower.c
../../../se_lib/vavepowerrms_i16.c
../../../se_lib/vcmul.c
../../../se_lib/vcrmul_i16_i32.c
../../../se_lib/vdotproduct_i16_i32.c
../../../se_lib/vdotproductq15_i16.c
../../../se_lib/vdotproductswithleftshift_q15_i16.c
../../../se_lib/vfill_i16.c
../../../se_lib/vfill_i32.c
../../../se_lib/vfloatlib.c
../../../se_lib/vgen_exp_ramp.c
../../../se_lib/vgenctone.c
../../../se_lib/vgentone.c
../../../se_lib/vgetindex.c
../../../se_lib/vgetvalue.c
../../../se_lib/vinvertorder.c
../../../se_lib/vleftshifts_i16.c
../../../se_lib/vlimitmin.c
../../../se_lib/vmax.c
../../../se_lib/vmin.c
../../../se_lib/vmmadd.c
../../../se_lib/vmove_i16.c
../../../se_lib/vmove_i32.c
../../../se_lib/vmovesrcstride_i16.c
../../../se_lib/vmul.c
../../../se_lib/vpower_i16_i32.c
../../../se_lib/vpowerwithexponent_i16_i32.c
../../../se_lib/vscale.c
../../../se_lib/vsub_i16.c
../../../se_lib/vsum_i32.c
../../../se_lib/vtrackupavedown.c

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File
../../../se_lib/win_fcns.c
../../../se_lib/winbufdft.c
../../../se_lib/wola.c

7.6.2 Google BreakPad and Minidump

File
./src/client/linux/handler/minidump_descriptor.h
./src/client/linux/minidump_writer/directory_reader.h
./src/client/linux/minidump_writer/line_reader.h
./src/client/linux/minidump_writer/proc_cpuinfo_reader.h
./src/client/minidump_file_writer-inl.h
./src/common/linux/elfutils-inl.h

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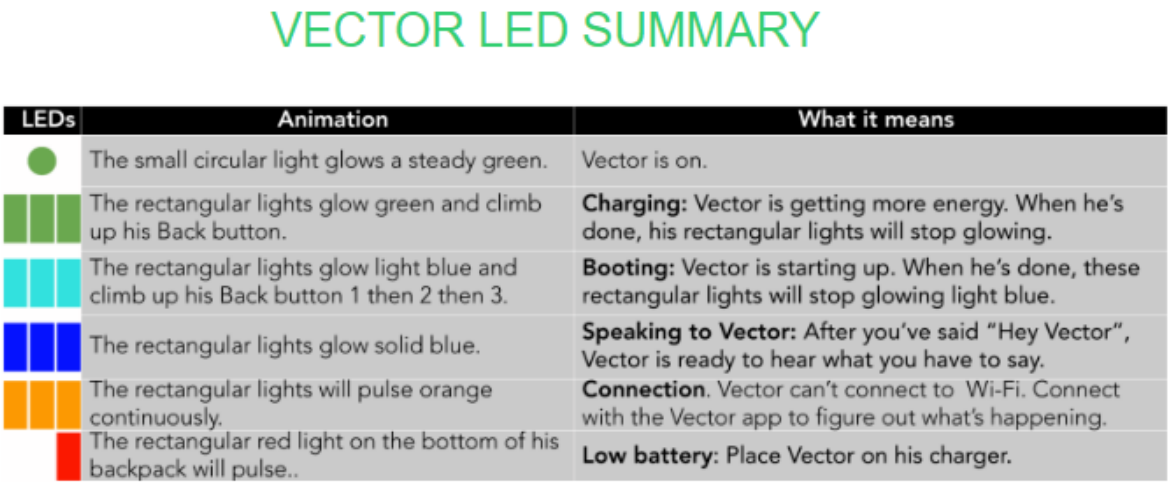
8. Troubleshooting

8.1 Backpack Lights



Things that this could do:

- Diagram of the backpack lights
- Show the FAC lights
- Changes to the backpack lights in the custom software

See also DDL.

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9. Vector enhancement proposals

9.1 Vector Enhancement Proposals

Memos, cheekily named for Python's memo system. At the moment, I see these as proposals for changes to the software and files on a Vector. (Proposals for changes to the site or documentation, or build tools, etc should go elsewhere.)

This would be relevant for changes, esp substantial changes, that you might like many people to adopt.

File Format:

- I'm going to try to use markdown most often, but
- PDF/HTML export for normal human readers

Common elements, to make it easier to read and management them:

The first part is the markdown front matter: it begins and ends with --- and the lines inside contain YAML. This lets other tools extract the basics.

```
---
title: VEP123 - The name of the VEP (only a few words)
summary: An ptional description of the proposal, if the title is too short
authors:
    - Author Name
date: 2022-07-10
---
```

The title starts with "VEP" and a unique (serial) number. It is followed by a brief description or topic of the proposal. The other fields are self explanatory, and helps track the info

Other outline, organization:

- Description of the changes
- Some Design decisions
- Documentation
- Cavaets
- Status
- References
- Change history synopsis (this is for people)

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9.2 VEP1 - Update-engine changes

Summary: Update-engine changes to make for unsigned, incremental updates; and to reduce the number of partitions modified.

Authors: Randall Maas

9.2.1 Description of the changes

Motivation: Building a new, experimental development release is not possible with an stock update-engine:

1. We can't create an OTA file for unmodified production, development and OSKR bots, as it needs to be signed in order for the update-engine to apply it.
2. The OTA update is very "heavy weight" -- it needs to update the boot and system files systems (with a 200+MB file!) just to change a couple of files.

This enhancement changes the following to the update engine:

- remove signing check of the manifest, update files
- Allows replacing individual partitions, esp just the system file system; usually it replaces several at a time
- Allows using tar to update the contents of the system file system
- This is not recommended since it doesn't get the permissions right

9.2.2 Documentation

- none at this time

9.2.3 Cavaets

- the tar based updating of the system file system doesn't always work as expected, since the busybox tar doesn't preserve permissions
- it is tricky to create a tar file
- there is no undo for a partial update
- this probably doesn't disable delta updates properly, so if a delta update were to be issued, we'd need a way to make sure it doesn't mess up the FS.

9.2.4 Status

- it works well (except the system fs file-only changes), I believe that Wire has used this or a modified version
- I am considering other changes to support package-based updates to the file system, to better address the above issues.

9.2.5 References

9.2.6 Change history synopsis

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9.3 VEP2 - Package management for modules on Vector

Summary: Supports installng and uninstalling packages/modules on Vector

Authors: Randall Maas

9.3.1 Description of the changes

Motivation: We needed a way to package changes to a few files on an already deployed system, to ensure that the permissions are correct on the files (usually executable), and some restrictions/protections from screwing up system files. (Ie, don't force it to be unbootable)

This is a package manager that does those, and adds in a few extras:

- It allows modifying parts of a file, usually the version identifier of the system, so we know what we're working with.
- Lists the installed packages
- Can uninstall packages
- Can set the premissions for the files.

9.3.2 Some Design decisions:

- The tool had to be small, and not hard to deploy
- The tool can’t be compiled (we don't know how)
- It had to be based on tools already on Vector: python 2.7, and busybox based utils. Busybox supplies the shell, and tar... except tar doesn't support preserving permissions.
- It is preferred to separate out the package manager from the update-engine as much as possible, to make int more understandable and support testing.

It just installs the packages

This tool doesn't do everything that the other managers do:

- It doesn't check dependencies
- It doesn't download files
- It has minimal the pre-flight, post-flight scripts that are run.

The package download is handled by either the update-engine (and its line of control), or by scp command. The lack of dependency check is a benefit, as its hard to maintain, and it is rarely used correctly: maintainers tend to choose a dependency of "the latest version" (as of when the package was), negating its use.

9.3.3 Documentation

The documentation of the tool is included as part of it's tgz. This is a quick overview.

When a package is installed it creates another package taking a snapshot of those files already there. When the package is uninstalled this 2nd package is used to replace the newer files with the older ones. It doesn’t delete any files that were added since or by the first package, so some extra stuff can accumulate, but that is far safer.

Creating a package. To create a package, lets call it demo, requires setting up the files sytem with the files, and the package manifest. The manifest says, among other things:

1. The package name, version, and other helpful paperwork info.
2. where to get the files from locally, and where they should be placed into filesystem deployed when deployed on a Vector.
3. The path to any files that should be modifed, and how. This is used to change the reported version string.
4. The permissions to set the files to

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I've attached a really simple demo to demonstrate. To create a package unzip them, and then:

```
./vector-pkg.py create –pkg=demo
```

That will create .vpkg file — a gzip'd tar file with a specific layout. From here everything has to be on a Vector.

Installation. To install the vpkg:

```
./vector-pkg.py install –pkg=demo-1.vpkg
```

Uninstall. To uninstall the vpkg later

```
./vector-pkg.py uninstall –pkg=demo-1
```

9.3.4 Cavaets

9.3.5 Status

Not tested by others yet. Once the bugs are shaken out, the update-engine can be tweaked. When the update-engine gets a URL with ".vpkg" (such as from the BLE app) at the end, it downloads it, and then pass it to the package manager.

9.3.6 References

9.3.7 Change history synopsis

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9.4 VEP3 - Developer configurations for robot

Summary: Change robot configurations for

This is a stub proposal for a VPKG with many common configuration setttings for a Developer-tinkering bots.

- configure many the servers to use to main production server
- configure servers to use local servers (logging)
- Customize: CPU, Heat, Display settings

Not sure if these can be downloaded via Bluetooth LE

- server configuration
- local preferences

9.4.1 References

9.4.2 Change history synopsis

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9.5 VEP4 - Logging

Summary: Changes to the logging scripts, configuration to local servers. This is to modify the servers to use for the logging, crash dumps, and similar. Events/ logs will no longer be sent to AWS, or backtrace.io.

Authors: Randall Maas

This a draft proposal (to be filled in) on how to modify Vector config files and scripts to send logging and crash dumps to a server of our choosing.

- Logging
- Trace information
- Server
- Settings
- DAS optin/optout

Replace /anki/bin/vic-log-upload - moving aside, /anki/bin/vic-log-upload since it just does AWS, S3:// - put in something that can contact our local server

Files:

- server_config.json
- log uploader

9.5.1 References

9.5.2 Change history synopsis

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