EB GUIDE Studio
and
EB GUIDE Speech Extension

Elektrobit

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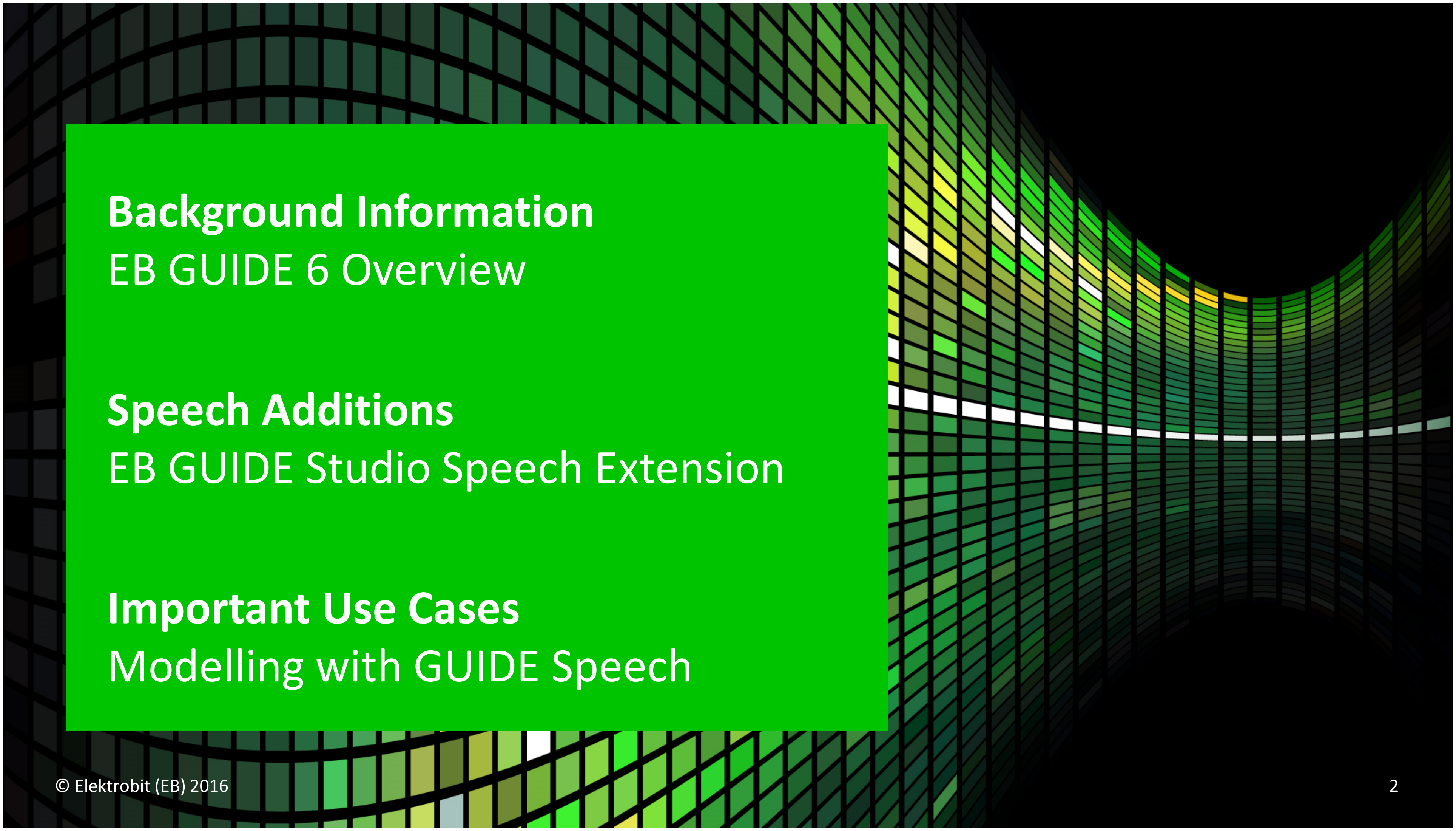
June 2016

Agenda

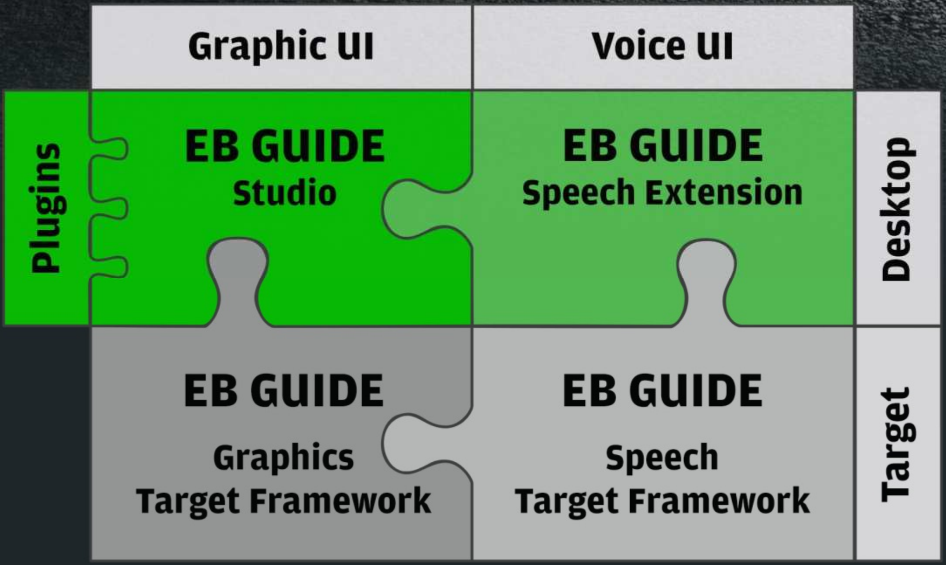


Background Information
EB GUIDE 6 Overview

Speech Additions
EB GUIDE Studio Speech Extension

Important Use Cases
Modelling with GUIDE Speech

EB GUIDE product overview



Graphic UI

Voice UI

Plugins

EB GUIDE Studio

EB GUIDE Speech Extension

Desktop

EB GUIDE Graphics Target Framework

EB GUIDE Speech Target Framework

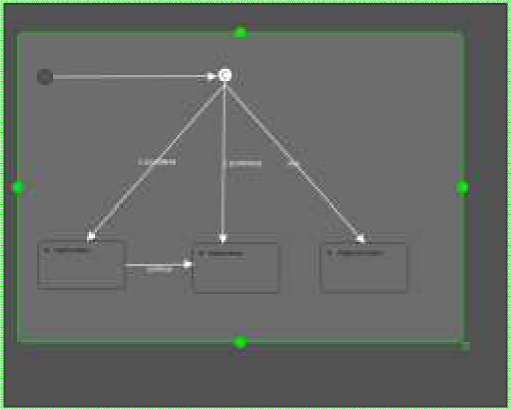
Target

EB GUIDE Studio
Tool for graphical HMI development
EB GUIDE Speech Extension
Tool add-on for speech-enabled UI design
EB GUIDE Graphics Target Framework (GTF)
Runtime environment for the graphical user interface
EB GUIDE Speech Target Framework (STF)
Runtime environment for enabling speech dialog and additionally integrated customer applications. Additional easy-to-use services to the recognizer engine

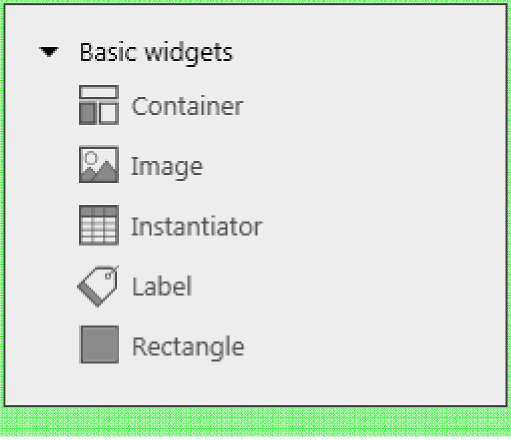
The elements of an EB GUIDE model

Appearance & behavior

UML state charts



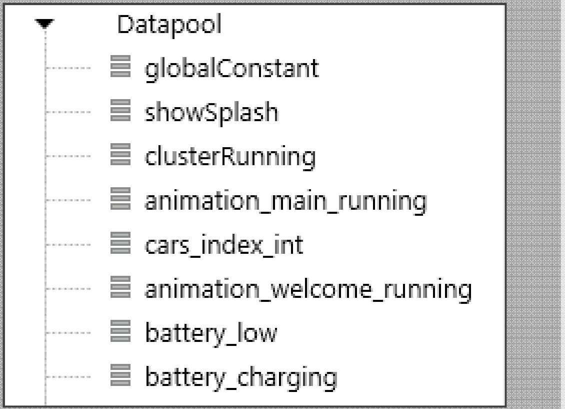
Views and widgets



- Basic widgets
  - Container
  - Image
  - Instantiator
  - Label
  - Rectangle

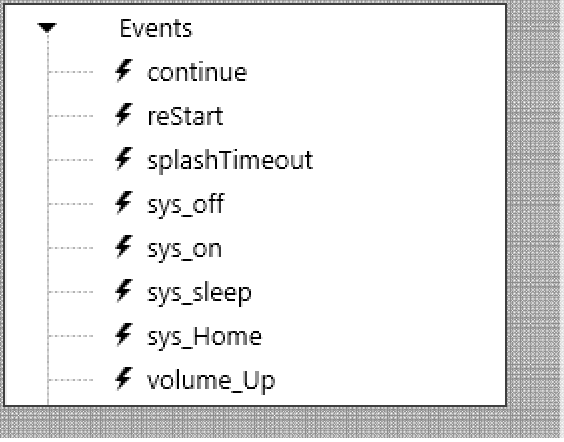
Communication interface

Datapool



- Datapool
  - globalConstant
  - showSplash
  - clusterRunning
  - animation_main_running
  - cars_index_int
  - animation_welcome_running
  - battery_low
  - battery_charging

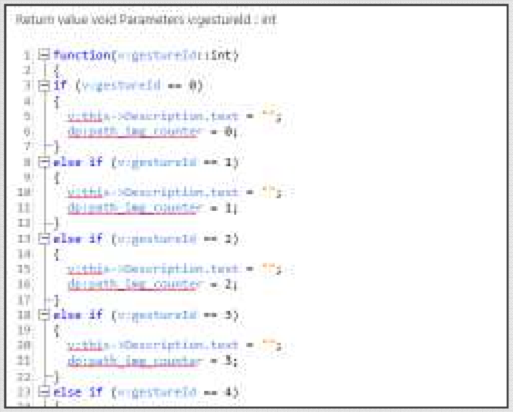
Events



- Events
  - continue
  - reStart
  - splashTimeout
  - sys_off
  - sys_on
  - sys_sleep
  - sys_Home
  - volume_Up

Script & speech

Scripting

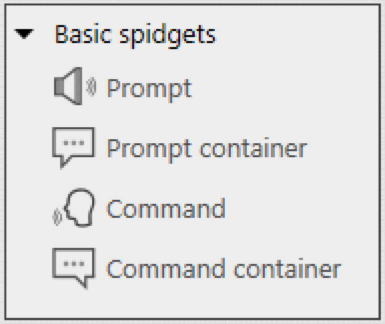


Return value void Parameters v:gestureId : int

```
function(v:gestureId:int)
{
if (v:gestureId == 0)
{
  v:this->Description.text = "";
  dp:path_img_counter = 0;
}
else if (v:gestureId == 1)
{
  v:this->Description.text = "";
  dp:path_img_counter = 1;
}
else if (v:gestureId == 2)
{
  v:this->Description.text = "";
  dp:path_img_counter = 2;
}
else if (v:gestureId == 3)
{
  v:this->Description.text = "";
  dp:path_img_counter = 3;
}
else if (v:gestureId == 4)
```

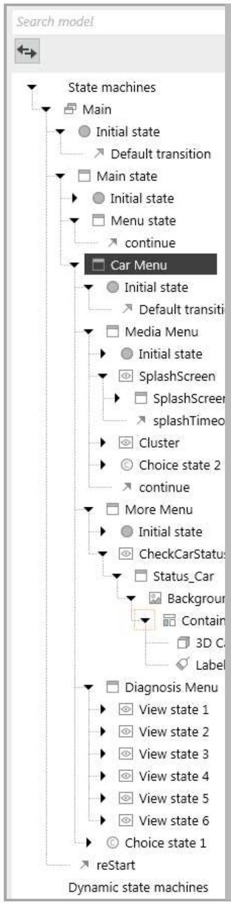
Commands and prompts

(in case of EB GUIDE Speech Extension)



- Basic spidgets
  - Prompt
  - Prompt container
  - Command
  - Command container

UML illustrated state charts



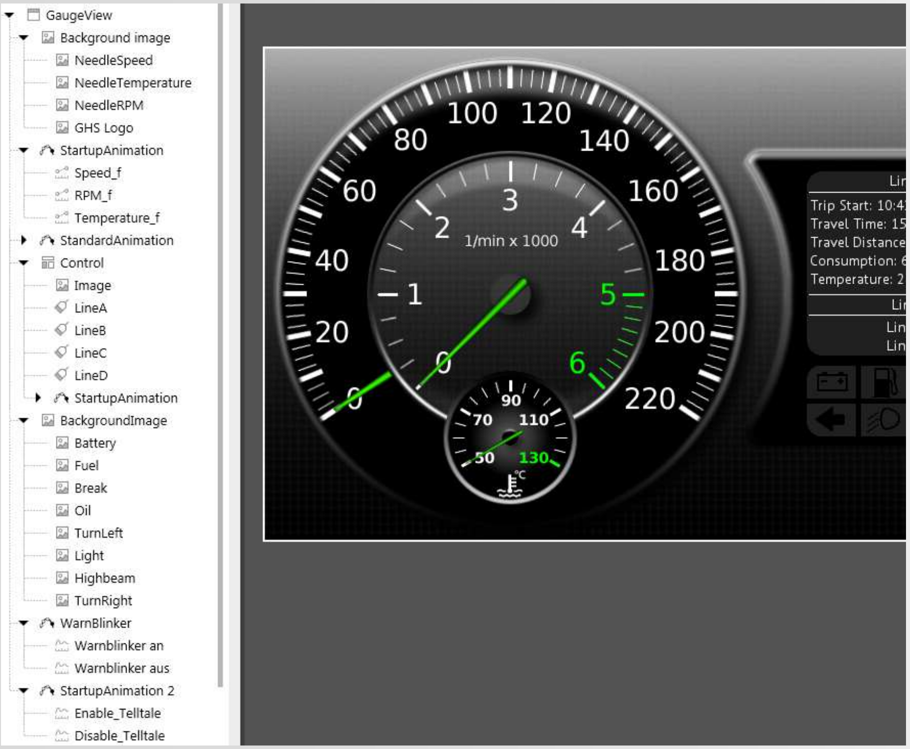
Individual State charts for GUI and VUI model

One state describes the shown view
OR
One state describes one dialog step

The state charts describe GUI and VUI interaction

From Unified Modeling Language (UML) derived state charts

Native widgets for modeling

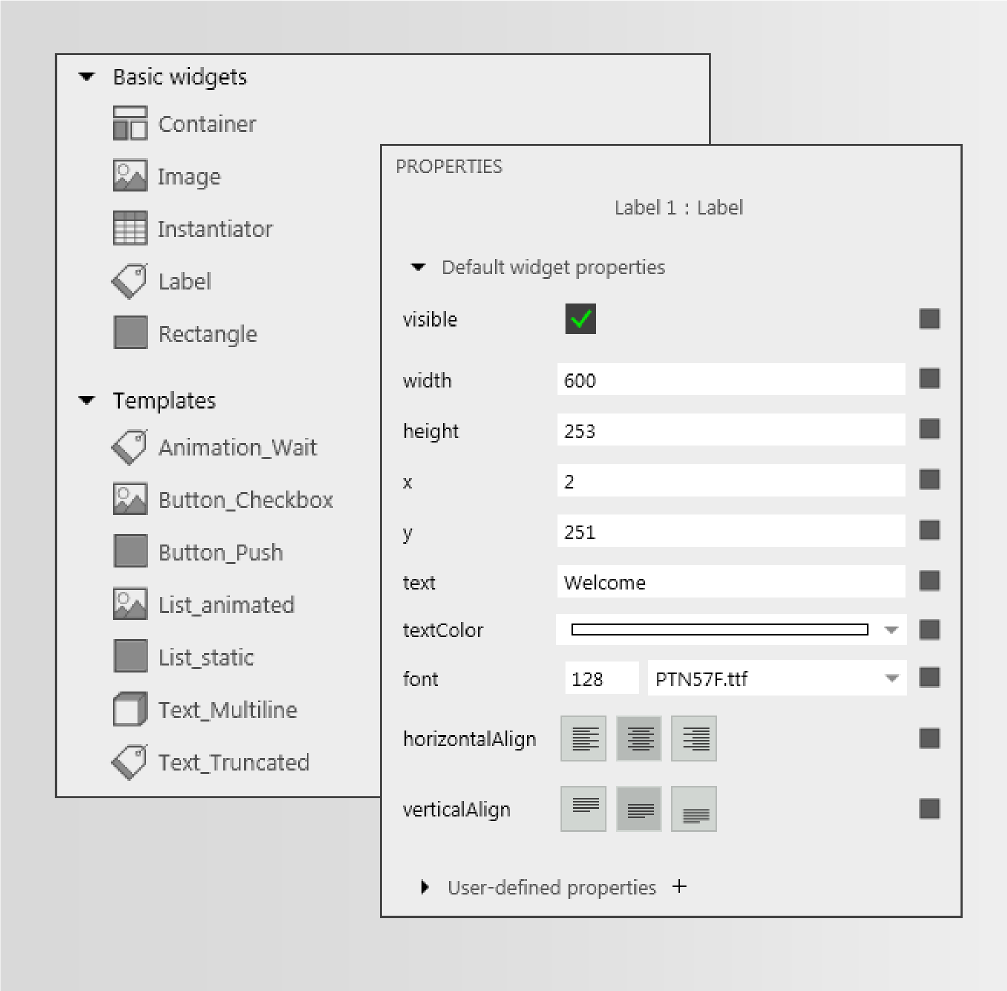


The EB GUIDE Studio Project editor manages the model hierarchy

Views combine widgets in a widget tree

WidgetTemplates allow reuse, building-blocks, and align with the wireframe pattern of the design departments

Templates as reusable building blocks



Label 1 : Label

visible	☑
width	600
height	253
x	2
y	251
text	Welcome
textColor	
font	128 PTN57F.ttf
horizontalAlign	
verticalAlign	

Widgets for graphical UIs

- Views are composed from a tree of widgets
- Widgets represent rectangles, texts, images...

Spidgets for voice dialog UIs

- Speech dialogs are composed from spidgets
- Spidgets represent prompts, commands, recognizers...

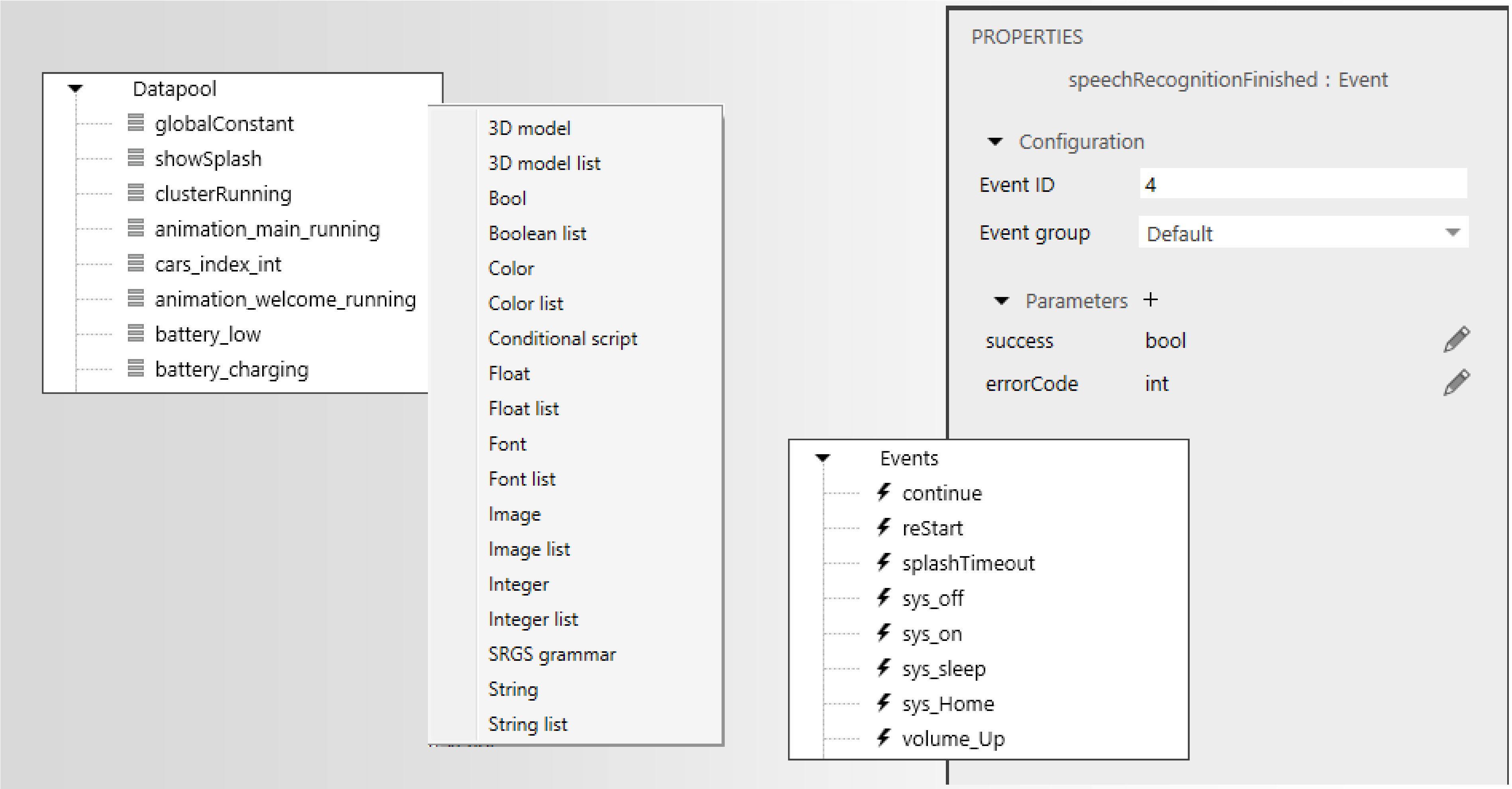
Properties

- Widgets and spidgets are configured by properties

Templates

- Complex widget or spidget trees can be assembled to reusable templates

Datapool & Events: Interfacing



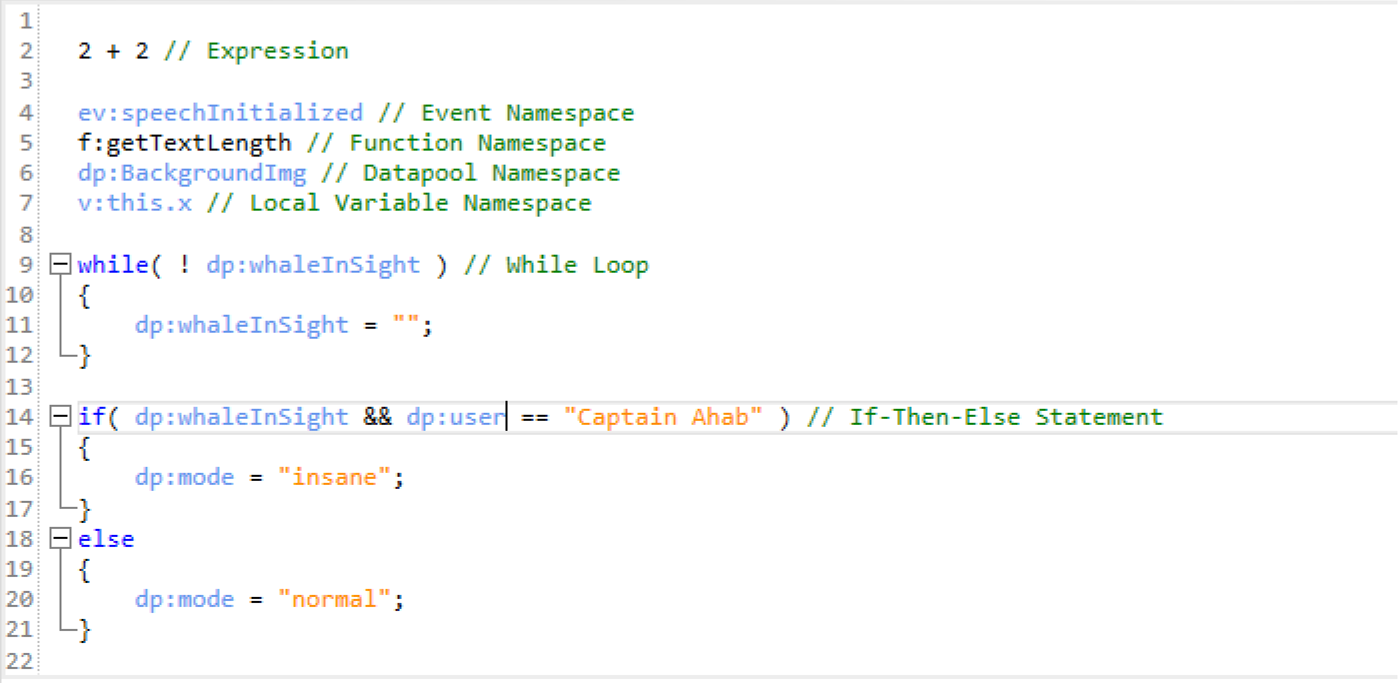
speechRecognitionFinished : Event

Event ID: 4

Event group: Default

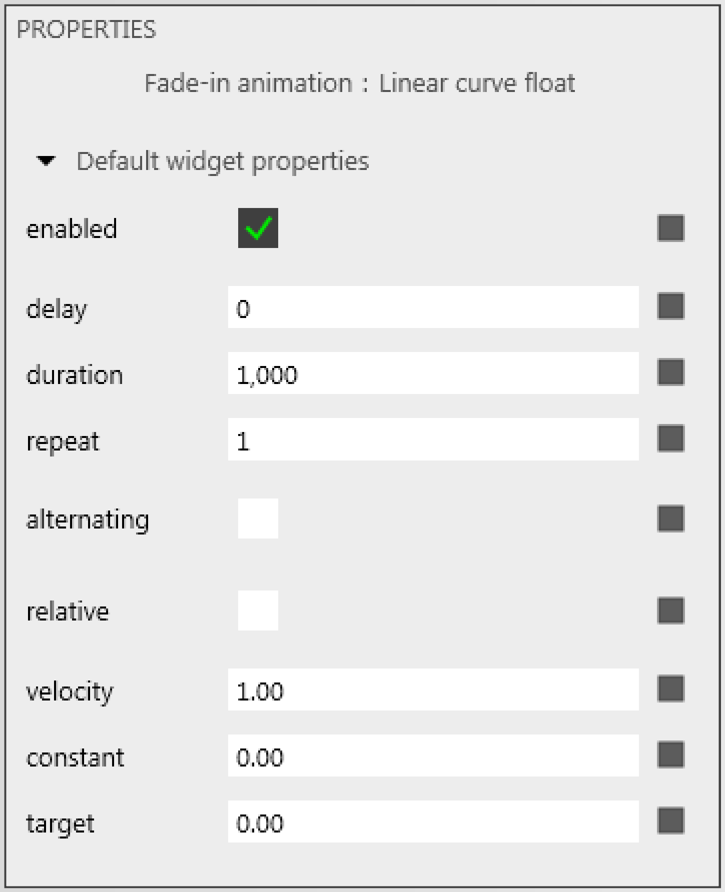
success	bool
errorCode	int

GTF Script



```

2 + 2 // Expression

ev:speechInitialized // Event Namespace
f:getTextLength // Function Namespace
dp:BackgroundImg // Datapool Namespace
v:this.x // Local Variable Namespace

while( ! dp:whaleInSight ) // While Loop
{
    dp:whaleInSight = "";
}

if( dp:whaleInSight && dp:user == "Captain Ahab" ) // If-Then-Else Statement
{
    dp:mode = "insane";
}
else
{
    dp:mode = "normal";
}

```

Modeling of animations along a timeline



PROPERTIES

Fade-in animation : Linear curve float

Default widget properties

enabled	☑
delay	0
duration	1,000
repeat	1
alternating	☐
relative	☐
velocity	1.00
constant	0.00
target	0.00

Animations are modeled directly in EB GUIDE Studio and applied to target widgets

Every widget property can be animated

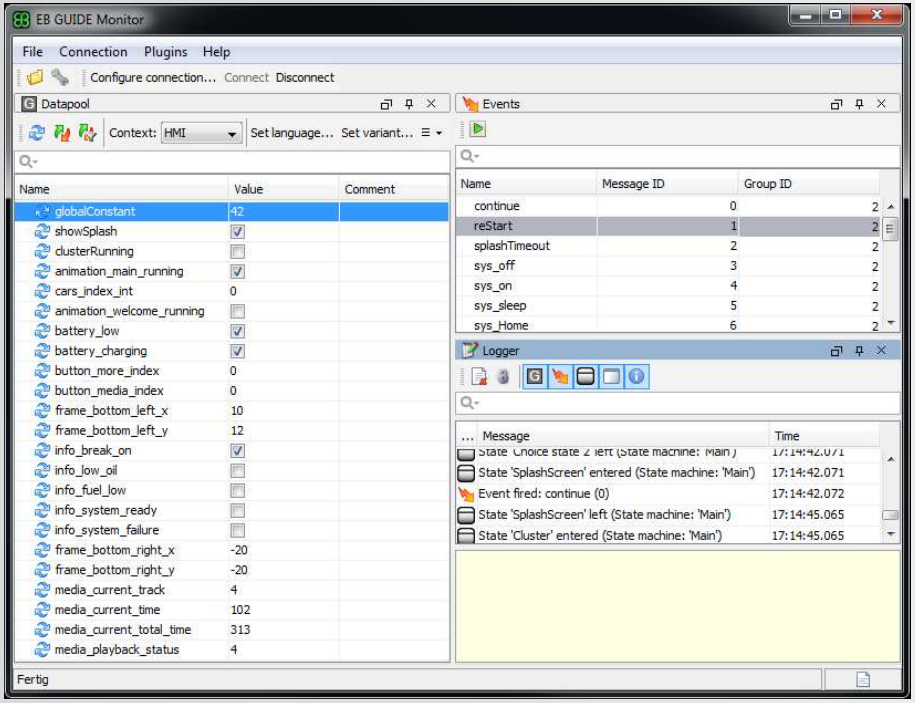
Animations can be scripted as well

Different kinds of animations:

- Animate whole widgets
- Animate parts inside a widget
- Animate view transitions between views (*)

(*) new in EB GUIDE 6.2

Monitor the HMI with EB GUIDE Monitor


EB GUIDE Monitor
File Connection Plugins Help
Configure connection... Connect Disconnect
Datapool
Context: HMI
Set language... Set variant...
Events
Logger
Fertig

Name	Value	Comment
globalConstant	42	
showSplash	☑	
clusterRunning	□	
animation_main_running	☑	
cars_index_int	0	
animation_welcome_running	□	
battery_low	☑	
battery_charging	☑	
button_more_index	0	
button_media_index	0	
frame_bottom_left_x	10	
frame_bottom_left_y	12	
info_break_on	☑	
info_low_oil	□	
info_fuel_low	□	
info_system_ready	□	
info_system_failure	□	
frame_bottom_right_x	-20	
frame_bottom_right_y	-20	
media_current_track	4	
media_current_time	102	
media_current_total_time	313	
media_playback_status	4	

Name	Message ID	Group ID
continue	0	2
reStart	1	2
splashTimeout	2	2
sys_off	3	2
sys_on	4	2
sys_sleep	5	2
sys_Home	6	2

...	Message	Time
	State 'Choice state 2' left (State machine: 'Main')	17:14:42.071
	State 'SplashScreen' entered (State machine: 'Main')	17:14:42.071
	Event fired: continue (0)	17:14:42.072
	State 'SplashScreen' left (State machine: 'Main')	17:14:45.065
	State 'Cluster' entered (State machine: 'Main')	17:14:45.065

Challenge

- Manage complex dialog flows
- Automated testing of dialog flows
- Early evaluation of usability

Solution

- EB GUIDE Monitor is a graphical tool to monitor and control the runtime.
- EB GUIDE Monitor supports test automation on the command line via JavaScript.

Key features – Consistency to the graphics world

Graphics and Haptic

View View state

Widget
- e.g. Static Text Field
- e.g. Button

Property
- Label
- OnTouch

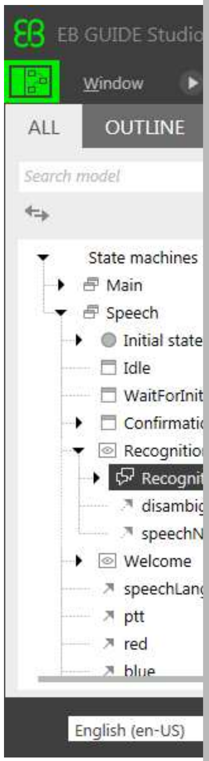
Speech Input and Output

Talk Talk state

Spidget
- Prompt
- Command

Property
- Prompt text
- OnRecognized

Talk Editor



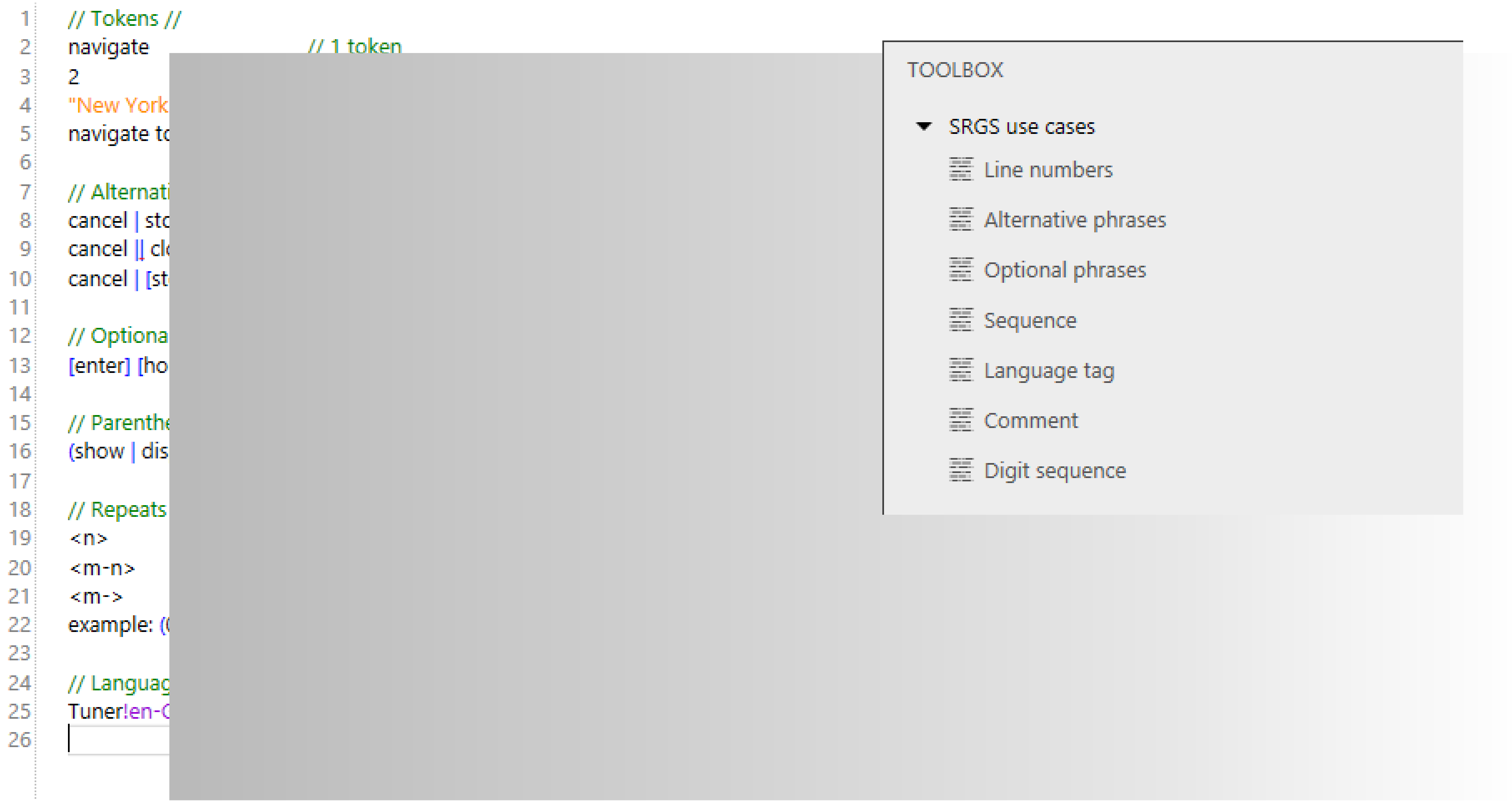
Talk editor for modeling dialog acts

Define prompts when entering the talk state to query user input

Define commands to collect user response

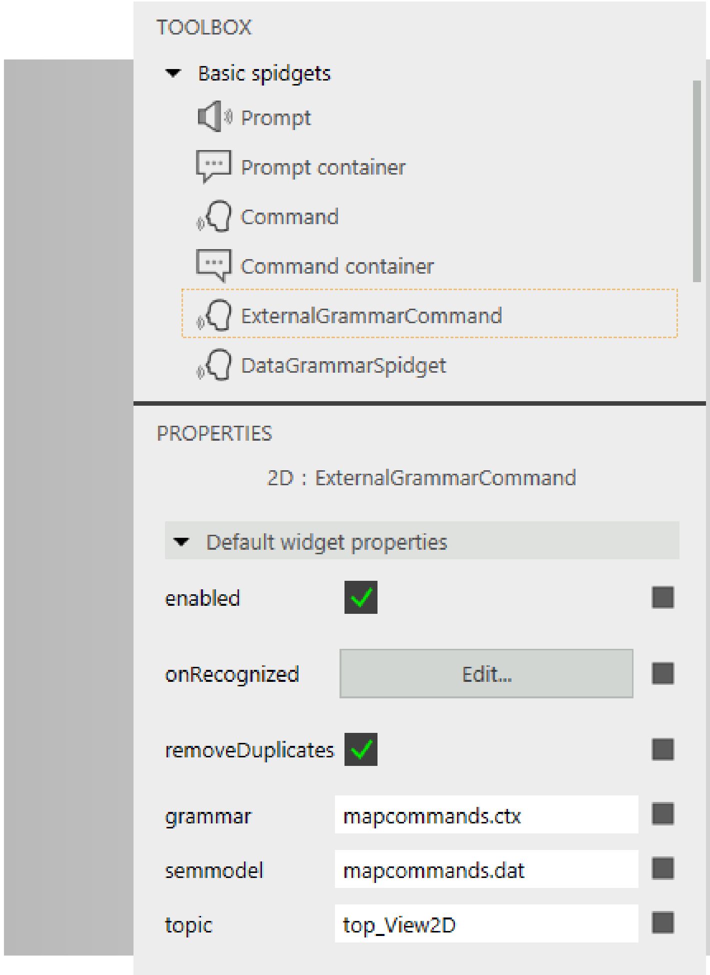
Adapt properties to trigger model events or update datapool items

SRGS Grammar: Using proper syntax



```
// Tokens //
navigate                    // 1 token
2
"New York
navigate tc

// Alternati
cancel | stc
cancel || clc
cancel | [st

// Optiona
[enter] [ho

// Parenthe
(show | dis

// Repeats
<n>
<m-n>
<m->
example: (

// Languag
Tuner!en-C

```

Add-on: NLU Commands (External Grammer)



TOOLBOX

- Basic spidgets
  - Prompt
  - Prompt container
  - Command
  - Command container
  - ExternalGrammarCommand
  - DataGrammarSpidget

PROPERTIES

2D : ExternalGrammarCommand

Default widget properties

enabled	☑
onRecognized	Edit...
removeDuplicates	☑
grammar	mapcommands.ctx
semmodel	mapcommands.dat
topic	top_View2D

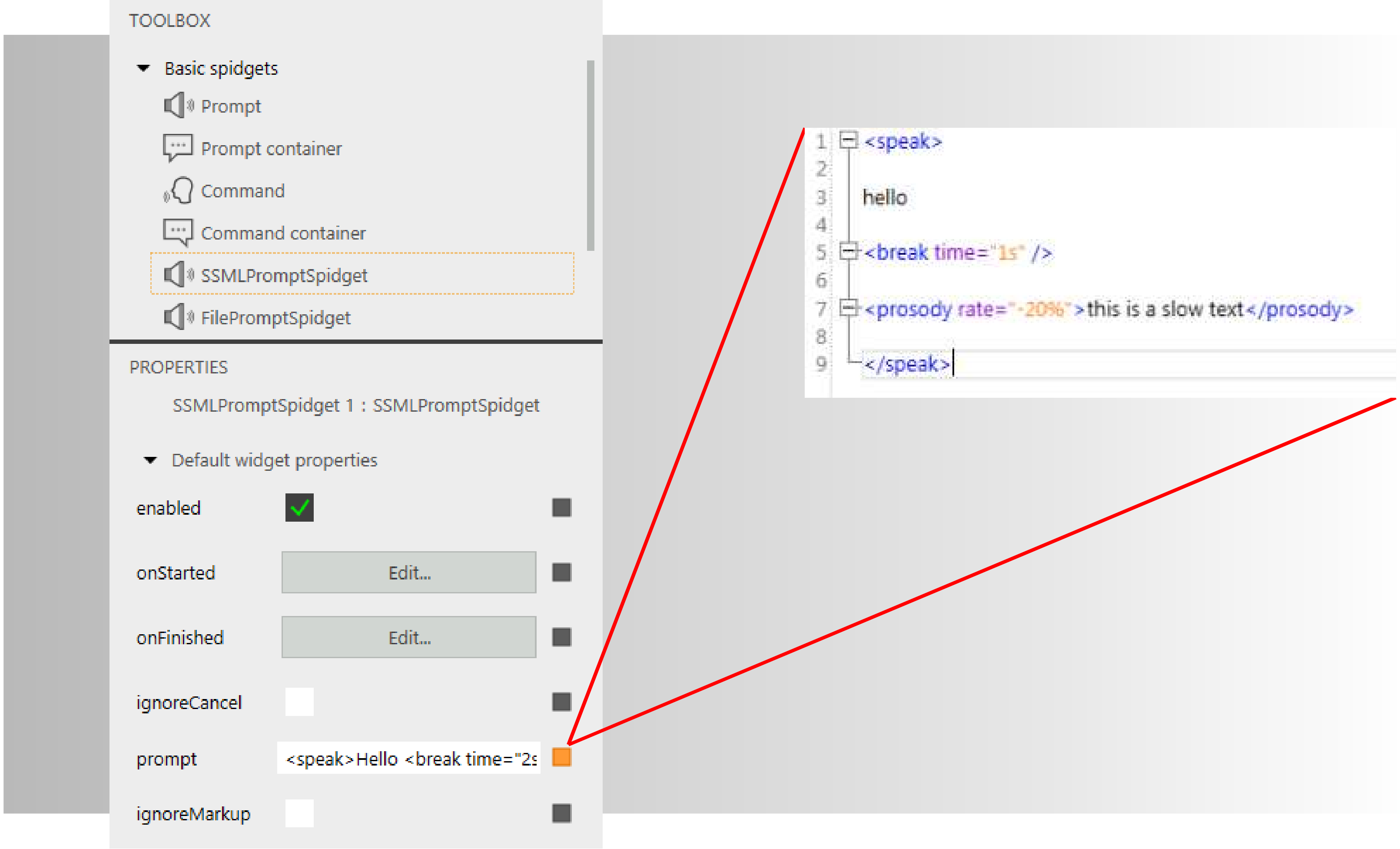
Challenge

- Numerous commands are hard to memorize
- Commands are not always intuitive enough for the end user to know what needs to be said

Solution

- EB GUIDE’s External Grammar Command Spidget allows for commands to be created by a third party that has experience with the natural language of the end user

Add-on: SSML (Speech Synthesis Markup Language) Prompts



SSMLPromptSpidget 1 : SSMLPromptSpidget

enabled	☑
onStarted	Edit...
onFinished	Edit...
ignoreCancel	□
prompt	<speak>Hello <break time="2s
ignoreMarkup	□

```
<speak>

hello

<break time="1s" />

<prosody rate="-20%">this is a slow text</prosody>

</speak>
```

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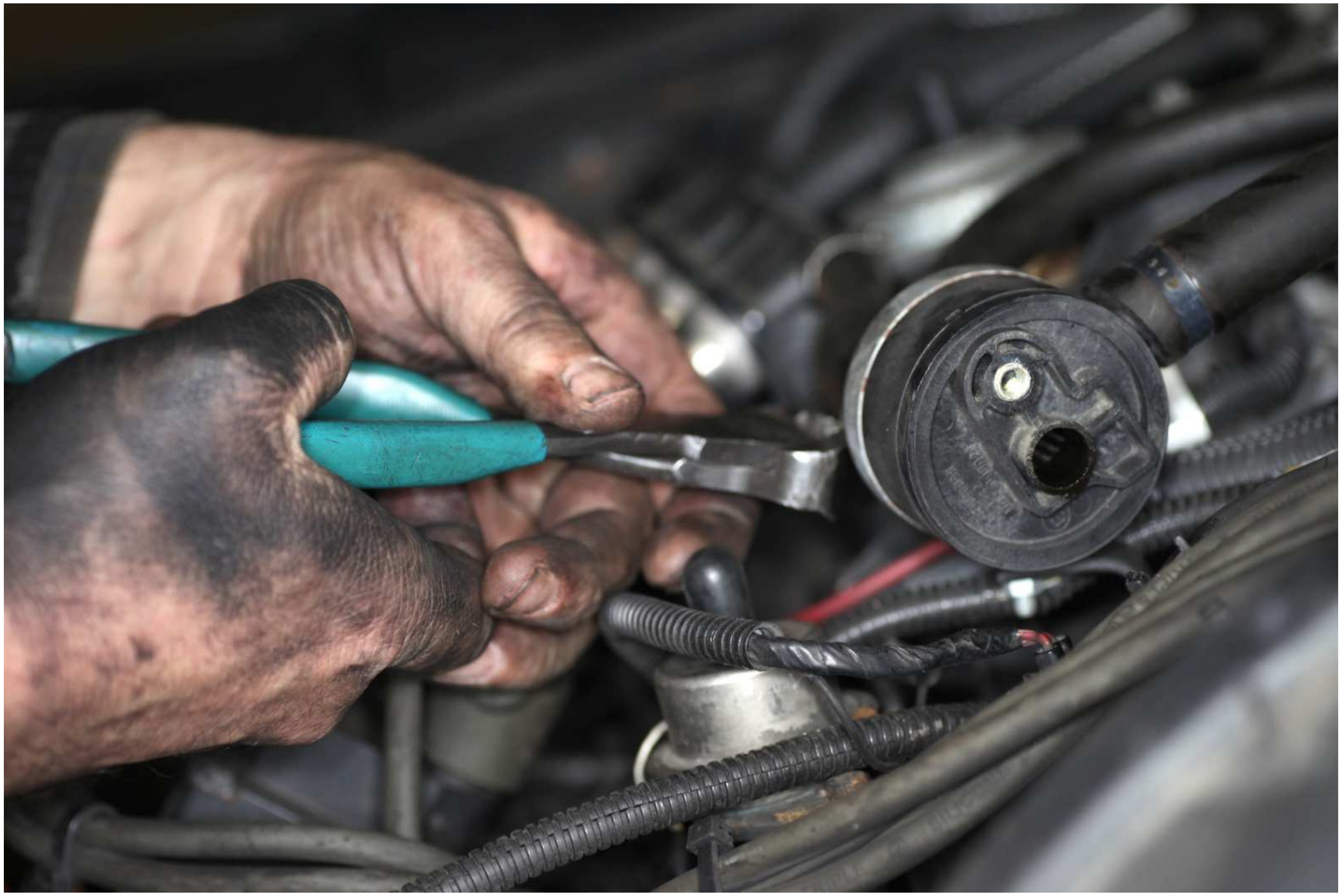

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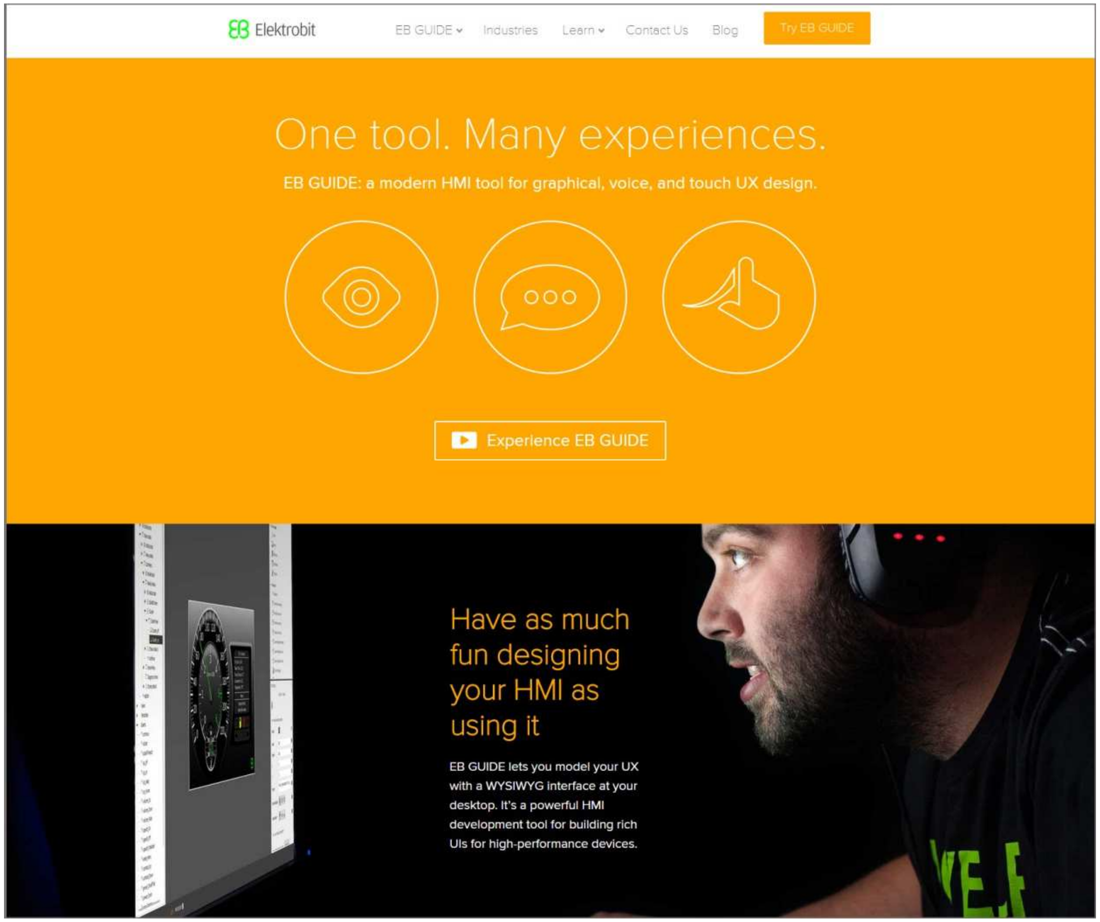

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for non commercial use cases

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- Limited Rights
- Limited Target Applications (win32, Android)
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EB GUIDE TF Runtime

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