



Deutsche Telekom Laboratories

Requirements for an Emotional Markup Language with Voice Portal Applications in Mind

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Requirements for an Emotional Markup Language with Voice Portal Applications in Mind

Outline.

- Applications
- What are emotional Voice Portals?
- Stages of application building
- The labeling tool
- Conclusions

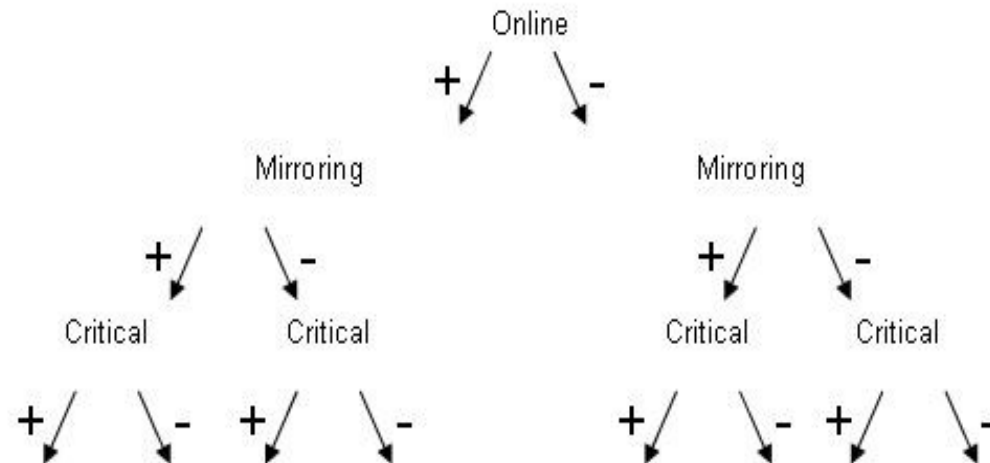
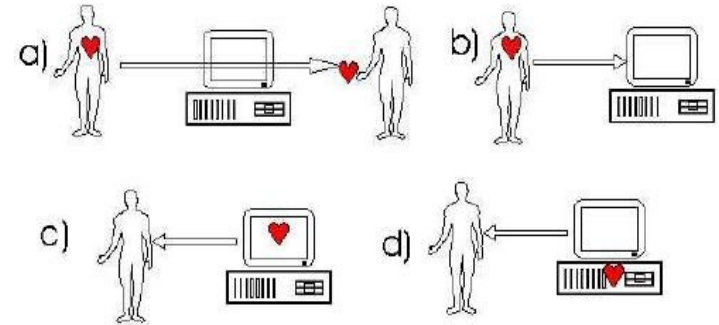


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Applications

Have a taxonomy and derive prototypes from it

- emotion monitoring
- emotion mirror
- understanding tutor
- emotion aware environment
- believable agent
- emotional chat
- medical application

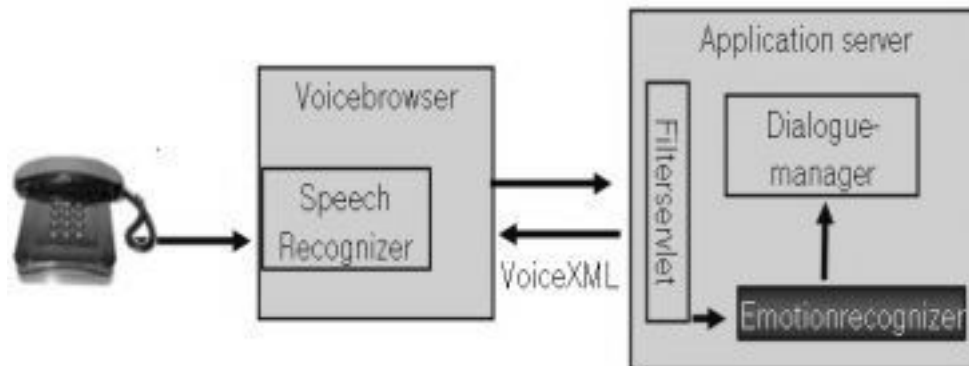


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Emotional Voice Portals

Recognize anger in the caller's voice and might

- Dispatch callers to trained agents or at least balance the load of angry customers over agents.
- Adapt the dialog design with some smoothing dialog strategy that can be done automatically.
- Collect statistics in order to gather information about the contentedness of your customers over time.



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Stages of application building

1. The application functionality must be specified.
2. Based on the specification, emotional situations and how they should be handled must be identified.
3. Based on this, emotion related states that may appear in this situations must be described.
4. To train the detection algorithms, a train and test dataset must be collected, either from a prototype, a Wizard of Oz study or a comparable application.
5. The data set must be labeled by human listeners in order to gain a ground truth.
6. The recognizer can then be integrated into the application but should be tuned / re-trained as often as possible in order to adapt to the real world situation.



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Labeling tool

Applet-Ansicht: emo.recorder.gui.Recorder.class

Applet

label tool, version: 1.3

No	Session	Name	Size	Transcript	Label
1	6	a11001s18.raw	1 sec	ja	U (2.6) 1 2 3 3 4
2	6	a11001s17.raw	1 sec	nein	U (2.0) 2
3	6	a11001s16.raw	1 sec	Schepers	A (3.0) 3
4	6	a11001s15.raw	1 sec	Anne	U (2.0) 2
5	5	a11001s9.raw	1 sec	Weihnachten	A (4.0) 4
6	5	a11001s8.raw	2 sec	letzte Woche	U (2.0) 1 3
7	5	a11001s7.raw	2 sec	Samstag	N (1.0) 1
8	5	a11001s6.raw	1 sec	Juni	U (2.0) 2

no. of recordings: 100

refresh

FTM APM N2W

1 2 3 4 5 6 NA del last label

transcribe

Weihnachten



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Conclusions

- A standardized interface for emotion description in dialog markup languages would enable the seamless integration into a multichannel dialog that comprises text, semantics and emotions.
- A standardized vocabulary set helps to exchange data, but it must be extensible to meet exotic emotion descriptions that might arise from dialog design perspective.
- Together with the vocabulary set it must be possible to state detailed information on what the vocabulary means semantically, e.g. by saving the instructions to the labelers in the "info" element.
- Human labelers must be able to label
 - several emotions at the same time,
 - intensity values for each emotion and an
 - overall confidence for their decision.

