

ViSiCAST Milestone M5-8: SiGML Standardisation

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Abstract:

Signing Gesture Markup Language (SiGML) is at the heart of the ViSiCAST project, providing the link between content creation and animation. Many tools will be developed to generate signing sequences in SiGML and to animate them within ViSiCAST applications.

This is the final ViSiCAST report concerned with the definition of SiGML:

- M5-10 Initial SiGML Definition
- D5-2 SiGML Definition
- M5-8 SiGML Standardisation

The original plan saw M5-8 proposing a final definition of SiGML that would be offered for adoption by W3C. The title used was "Final SiGML Proposed to W3C".

In practice, SiGML has not been used outside the ViSiCAST project so it is unrealistic to assume that the definition is ready to meet a wider set of needs. Further development can be expected through follow-on projects such as the eContent project, eSIGN.

This report is a survey of the status of SiGML and identifies future routes to standardisation through W3C, MPEG, and other European and international standards bodies.

1 Introduction

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M5-10 Initial SiGML Definition provided an encoding of HamNoSys 3 to enable initial work on synthetic animation. For D2-1 Internet Browser Plugin an extended version was provided which enabled a playlist of sign files to be specified. Support is thus provided for applications based on motion captured signs such as the Weather Forecast Application which uses D2-1.

D5-2 SiGML Definition specified SiGML 1.0, which includes support for HamNoSys 4 and non-manual gestures as specified in D5-1 Interface Definitions. The representation was reorganised to address the needs of synthetic animation, while retaining the structure of HamNoSys as far as possible.

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This report is a survey of the status of SiGML and identifies future routes to standardisation through W3C, MPEG, and other European and international bodies.

Section 2 explores standardisation through conformity to existing standards, extended as required for SiGML.

Section 3 explores new standardisation activities that are relevant to SiGML but are still in their early stages and can therefore adopt aspects of SiGML where appropriate.

Section 4 summarises the immediate activities that will bring SiGML to the attention of those concerned with standardisation.

Section 5 provides references and contact names for the groups identified.

It will be important to establish SiGML as a viable language for expressing signing gestures by seeking other users of the ViSiCAST technologies. This will enable refinement of the language and make it a more convincing candidate for standardisation.

2 Existing Standardisation Options

SMIL

The current SMIL Recommendation 2.0 was released in August 2001. It remains the case that SiGML will incorporate SMIL modules to provide synchronisation and presentation capabilities that are not specific to animation of human gestures using virtual human avatars.

SMIL in SiGML: Treating SiGML as a free-standing standard for signing and other human gestures, SiGML will use XHTML modularisation to include limited SMIL capabilities. Existing SiGML players would be enhanced to handle additional capabilities.

SiGML in SMIL: For use with other multimedia content, it would be more appropriate to regard SiGML as specifying a class of streamed content that forms part of a SMIL presentation. This would be the most appropriate way to introduce all the advanced features of SMIL, but would require the integration of SiGML into existing SMIL players, or the use of an open SMIL player architecture.

MPEG and XMT

Extensible MPEG-4 Textual Format (XMT) also uses modularisation to express MPEG content using SMIL and X3D (Extensible 3D Graphics). Some convergence between X3D and MPEG is being explored.

It would be natural to explore SiGML as a format within MPEG via XMT. ViSiCAST has close links with MPEG through work by INT on SNHC. Lack of access to tools has made progress on animating SiGML via MPEG slower than expected, but it should clearly be possible to convert SiGML to face and body data in SNHC. It would also be possible to consider SiGML as a format within MPEG, for conversion to SNHC form at the client end.

Further work on SiGML and MPEG would take place in collaboration with Prof. Françoise Prêteux and Dr. Marius Preda of INT.

3 Future Standardisation Options

Timed-Text

A Time-Text Working Group (TTWG) is being established by W3C. There are links to the SMIL and WAI activities. The scope is to cover such areas as teletext subtitling, but there is interest in audio captioning for the blind. Signed content is assumed as part of the architecture arising from TTWG. The TTWG has been made aware of work in ViSiCAST and there is interest from others concerned with accessibility issues from the DAISY consortium (providers of digital talking books) and JSRPD (Japanese Society for Rehabilitation of Persons with Disabilities). The BBC has an involvement in this working group.

It is clear that the use of SiGML for captioning in broadcast is an example of timed content, although perhaps there is rather more structure than is normal for the other sources of timed text. As this is a prime application of SiGML it is important to promote it through this initiative. The activity starts at the beginning of 2003 so it is ideal for ViSiCAST exploitation.

Design for All

The European Committee for Standardisation Information Society Standardization System (CEN/ISSS) has a Workshop on Design For All and Assistive Technologies (WS-DFA). A survey of EU projects that might contribute to standardisation by this route has been compiled recently with a section discussing ViSiCAST and mentioning the potential for SiGML.

The report may lead to some actions to take forward standardisation. It would clearly be appropriate for ViSiCAST work on SiGML to be represented here.

User Interface Symbols

In future Internet use of ViSiCAST technology it will be necessary to identify signed content. A related initiative aims to standardise symbols and icons for use by elderly and disabled persons. This is being undertaken by WG6 of the ISO/IEC User Interfaces activity JTC1/SC35.

It would be useful to maintain a watching brief so that the guidelines that are established are followed by future ViSiCAST work, such as in the eSIGN project.

4 ViSiCAST Priorities

Broadcast

ViSiCAST standardisation work in broadcast has been handled by IRT and INT concerning transmission standards. It is assumed that contact will be maintained with DVB and MPEG by those partners.

With regard to the format for SiGML content, it seems important to be in contact with the TTWG which starts to meet in 2003. There is also some material on standards for presentation of sign language content in the action on sign language in WS-DFA.

Internet

The WS-DFA work relating to sign language on the Internet is clearly relevant to ViSiCAST and the project would be regarded as one of the main contributors to a European-based standardisation initiative. We have been alerted to a concertation meeting to be held early in 2003 and should consider participation.

Meanwhile, many aspects of SiGML can be related to the use of SMIL, and MPEG, which can use SMIL to describe coordination of content. It may require some redesign of SiGML so that HamNoSys concepts are translated into a form that is more compatible with SMIL.

5 References and Contacts

W3C SMIL

SMIL Synchronised Multimedia Homepage at <http://www.w3c.org/>: <http://www.w3.org/AudioVideo/>. “W3C Recommendation: Synchronized Multimedia Integration Language (SMIL 2.0)” is dated 07 August 2001 at <http://www.w3.org/TR/smil20/>.

W3C XHTML Modularisation

The framework for modularisation, especially in XML Schema, has been formalised for XHTML but adopted for combining languages such as SMIL, SVG, and XHTML. The framework is presented in “Modularisation of XHTML in XML Schema” at <http://www.w3.org/TR/2002/WD-xhtml-m12n-schema-20020815/>.

Web3D X3D

“Extensible 3D Graphics” at <http://www.web3d.org/x3d.html>, the XML development of VRML. There is an X3D-MPEG Working Group <http://www.web3d.org/WorkingGroups/web3d-mpeg/> exploring convergence for expressing X3D content in MPEG.

MPEG

The MPEG workplan at <http://mpeg.telecomitalia.com/workplan.htm> suggests that XMT will be finalised at the end of 2002.

Contacts with MPEG are provided by Marius Preda (marius.preda@int-evry.fr) and Françoise Prêteux (francoise.preteux@int-evry.fr).

W3C TTWG

The Timed-Text initiative <http://www.w3.org/AudioVideo/timetext> is planned to start in January 2003. The charter is at: <http://www.w3.org/AudioVideo/TT/ttcharter20020901.html>. An archive of the W3C mailing list for the group is at: <http://lists.w3.org/Archives/Public/www-tt-tf>.

Particular contacts are DAISY: <http://www.daisy.org/> and JSRPD: http://www.jsrd.or.jp/index_e.html. The BBC has contacts with this initiative through David Kirby (david.kirby@rd.bbc.co.uk).

CEN/ISSS WS-DFA

The site for the CEN/ISSS workshop on Design for All is at <http://www.cenorm.be/iss/Workshop/dfa/>. The workplan at <http://www.cenorm.be/iss/Workshop/worksheets/worksheet-dfa.html> includes an action on sign language.

The sign language activity is headed by Gunnar Helstrøm (gunnar.hellstrom@omnitor.se). ViSiCAST has contributed to the report for WS-DFA compiled by Françoise Bousquet (francoise.bousquet@akela.fr).

ISO/IEC/JTC1/SC35/WG6 User Interface Symbols

The ISO/IEC work on standardisation of User Interfaces, JTC1/SC35 <http://forum.afnor.fr/afnor/WORK/AFNOR/GPN2/Z62A/index.htm> has a working group concerned with user interfaces for people with special needs, including the elderly and disabled at <http://std.dkuug.dk/JTC1/SC35/WG6/>. Their current activity is to survey requirements for icons and symbols for use by elderly and disabled persons.

The icon and symbol survey is coordinated by Richard Hodgkinson (richard_hodgkinson@uk.ibm.com).