

Project Co-ordinator Details

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Executive Summary

- Face to face transaction prototype system completed with a speech recognition module that shows sufficient robustness for practical implementation.
- Prototype evaluated, intelligibility confirmed, inadequacies highlighted and feedback for improvement obtained from users. These are being implemented before D3.1 submission
- The hardware for a pilot implementation have been purchased. European and Asian languages added so that a wider implementation of the technology can be justified.
- Action plan determined for Broadcast TX deliverable and parallel Mpeg4 system
- Supervised translation procedure for the generation of MPEG-4-compliant body data from arbitrary avatar models. Avatar with MPEG-4-compliant body released.
- UK Multiplex Management body TDN asked for demonstration in Novemeber
- Avatar models improved. software integrated to control head position and eye-gaze
- Work in advance of schedule for producing an Initial GML Tool (M2-1) based on an Initial GML Definition (newly introduced M5-10).
- Motion Capture equipment (EU funds) used by UEA in first production signing session.
- DRS proposals being enhanced for inclusion in Interface Definitions (D5-1).
- Publicity channels opened for-sensitive- communications with European deaf community

1 – Overview

1.1 Objectives

<i>Objectives</i>	<i>Progress towards achieving objectives</i>
Visicast will develop, evaluate and apply realistic virtual humans (avatars) to the generation of European deaf sign languages. The gesture description language and the associated real-time virtual humans will be used in the human-computer-interface of many applications. It will In the Applications Work Packages	
1. Enhance the status of Europe’s deaf citizens by improving their access to public services and entertainment, and enable them to develop and consume their own multimedia content for communication, leisure and learning. It will build applications for the signing system for:	
1.1 Television WP1: Television & Broadcast Transmission	WP1 <ul style="list-style-type: none"> • Broadcast demonstrator (D1-1) specified as prototype TX system, based on Mask-VR file format. Work on MPEG4 transmission system progressing in 2 stages. <ul style="list-style-type: none"> • encoding MaskVR to BAPs for transmission then decoding and encoding at receiver back to MaskVR • transcoding MaskVR to MPEG4 BAPS transmitting in BAPS and playing with mpeg4 player in receiver • Experimentation in progress to determine optimum compression for TX system and relating it to MPEG4 performance • Prototype of MPEG-4 video encoder/decoder released, demonstrating compression ratios 10 times higher than MPEG-2 for DVD quality transmission. Work in progress towards the integration of human body geometry/motion compression and motion-adaptive scalability features
1.2 Multimedia and the Internet WP2 Multimedia and WWW Applications	<ul style="list-style-type: none"> • WP2: Browser pug-in • Produced a standard format for the description of Dutch weather reports Translated the semantic components of these weather reports into Sign Language of the Netherlands (SLN).

1.3 Face-to-face transactions

WP3: Face-to-Face Transactions

It will in the Research Work Packages

2 Develop systems for the generation, storage and transmission of virtual signing.

3 Refine user-friendly methods for capturing signs

(WP4 Animation and Modelling)

Create a machine-readable notation to describe sign-language gestures (hand, face and body) which can be used to retrieve stored gestures or to build them from low-level motion components.

5 Use this descriptive language to produce tools that can translate from both speech and text into signing.

(WP5 Language and Notation)

6 Trial and evaluate the Application prototypes

(WP6 Trials and Evaluation)

7 Ensure effective

- Specified a provisional set of user requirements for the browser plug-in.
- Weather sentence will be translated to SLN and DGS to demo. initial Browser Plugin after experience with BSL
- Discussions started to determine options for Plugin technology.
- Continuing work to develop browser-based display environment for Signing Avatar. Prototype running a signer in a browser completed and working “in-house” , will be circulated among partners after testing

WP3

- A first version system has been completed and evaluated with the deaf community. Feedback confirms that most of the Avatar signs are intelligible the remainder have been recaptured. Trials also suggest that specific improvements needed to increase acceptability. These are being addressed. Criteria for roving trials in pubs and social areas designed .
- Progress is being made towards an unconstrained system (M3-2). New European and Asian languages added to increase exploitation potential
- The fixed format Entropic system is no longer available (purchased by MicroSoft and withdrawn pending release as MicroSoft products). Now using Dragon system to recognise a much larger vocabulary for unconstrained, free-format, speech recognition.
- New avatar and playing system being integrated and new signs installed. The Dragon recogniser needs to be adopted.

WP4

- Avatar Integration of findings of first evaluation in progress
- Work in progress on creation of advanced run-time environment for Signing Avatar, with virtual camera and virtual lighting control. This will permit improved realism and allow more user choice in the setting of parameters. This environment will become the Avatar run-time host for WP1, WP2 (WWW-versioned) and WP3 together with the potential compositor equivalent being developed in the mpeg4 parallel work
- Televirtual training UEA in use of Motion Capture System and the capturing of new / upgraded signs
- The first production signing session took place on the 26th and 27th June involving RNID to produce some new signs for WP3 activity. Generic tool for the generation of MPEG-4-compliant body models from arbitrary avatars. Work in progress towards a complete tool integrating animated face MPEG-4 modelling
- Generated MPEG-4-compliant face data from arbitrary avatar models

WP5

- Agreement on GML mark 1.
- Draft of HamNoSys refinements documentation written.
- Initial domain for NL processing chosen based on several pilot studies
- Potential grammar development tools analysed in the light of the special needs of sign language grammar and phonology
- After an initial delay in recruitment, WP5 is making respectable progress. Development made to the proposal for the DRS representation (M5-1) the interface between work at UEA and IDGS/IvD.
- Investigation of how to produce DRSs from the output of the CMU parser progressing and on schedule.
- Initial investigation of tools for use in synthesising sign language from DRSs suggests that UEA will be able to shadow IDGS/IvD work in this area even if this work is undertaken on non-Windows platforms.
- The Initial GML definition (M5-10) has been delivered. It is ahead of the needs of WP2 in the area of HamNoSys-based signs.

WP6

<p>management, external communications and publicity for the project (WP7 Project Management, External Communications and Publicity)</p> <p>8 Ensure appropriate exploitation and dissemination of results (WP8 Exploitation and Dissemination)</p>	<ul style="list-style-type: none"> Completed quantitative/qualitative evaluation of Constrained PO system. Assessed by 6 deaf people (1st language BSL) and 3 PO clerks. They indicated scope for improvements, where improvements should be made and provided baseline measures for assessment of future systems Draft report complete. Final report to be complete July. Recruitment of Community Evaluation Officer for informal evaluations in the deaf community in progress. <p>WP7</p> <ul style="list-style-type: none"> 3rd Consortium meeting held together with 3 other WP meetings. Website improved but still needs modification in the light of usage and the streaming software installed. Package requested to monitor usage incremental submission of financial data now possible using the website. This will help to avoid last minute rush Established credible communication channels with the deaf community <p>WP8:</p> <ul style="list-style-type: none"> Marketing and exploitation plan 8.1 and 8.2 submitted on schedule. Post Office considering implementing D3-1 throughout the network. Meetings are planned with ICL who produce existing counter systems.
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1.2 Milestones

<i>Milestone</i>	<i>Plan ned date</i>	<i>Actu al date</i>	<i>Comments</i>
M3.1 Recordings of transactions real time speech recognition	M 2	M 2	Motion capture recording of BSL sign sequences for selected P O Transactions. Adaptation of speech recognition system to respond to corresponding phrases uttered by counter clerks.
M3.2 Lexicon of avatar signs	M4	M4	Segmentation of motion captured signs (M3-1) for integration into speech-driven P O system.
M3.3 Evaluation of system	M6	M6	Evaluation of Constrained Post Office System by P O counter 3 clerks and 6 deaf customers.
M5.10 Initial GML Definition	M6	M6	Initial definition of Gesture Markup Language.

1.3 Deliverables

<i>Deliverable Code & Name</i>	<i>Planne d date</i>	<i>Actual date</i>	<i>Comments</i>
D3.1 Constrained Post Office System	7	5	System and evaluation completed. Using remaining time to implement improvements to submit in Month 7

1.4 Deviations from Plan

<i>Causes and Description</i>	<i>Corrective actions</i>
<p>Milestone 5.2 Agreed Lexicon Format (Planned Month 5 Revised Month 10) Work postponed. To compensate for delays in recruitment at UH and UEA those milestones with immediate dependants have been given priority.</p> <p>M5.3 Initial HamNoSys refinements documented Planned Month 6 Revised Month 9 XML definition for individual signs completed, to be revised to include a number of refinements currently under evaluation as well as synchronisation mechanisms</p>	<p>For this milestone, there was a lay time of 5 month that could be used. Therefore, no corrective actions are needed.</p> <p>Slight delay due to delays in recruitment at both UH and UEA. Parts still to be completed will only be used later. During the May Hamburg workshop, items still on the agenda were arranged so that the dependent part of WP4 is not handicapped. No additional corrective actions needed, no effect on deliverables foreseen.</p>

2 – Contractual Arrangements None

3 - Project Meetings (held and foreseen)

<i>Title</i>	<i>Data and Place</i>	<i>Main conclusions</i>
WP4/5 meeting WP2/WP5 mtg. WP1 Meeting 3 rd Consortium Planning Meeting BT Mtg to discuss synergy with Prometheus Project	09/10 May00 IDGS,Hamburg 28Jun00 IvD, Holland 28Jun00 IvD Holland 29Jun00 IvD, Holland 30Jun00 IvD, Holland 04.03.00	Dissemination HamNoSys/GML methods Detailed actions for next 3 months Dealt with admin, reviewed progress, resolved problems,determined future actions Some common ground but differences in approach so far likely to prevent close co- operation being feasible

4 - Dissemination / Promotional Information

4.1 Conferences and/or Workshops attended/organised/foreseen by the project

<i>Date</i>	<i>Title</i>	<i>N</i> <i>o</i>	<i>Number of persons attended + other information</i>
6/4/ 00	IST/French Ministry for Education, Research & Technology joint Workshop on Information Technologies for Health Care, Paris, France	2	Presentation of IST ViSiCAST Project
12/4 /00	6th Conference on Content-Based Multimedia Information Access (RIA0'2000), Paris, France	1	Presentation and demonstration of INT activities on sign language indexing & virtual signing, including IST ViSiCAST Project
6/4/ 00	IEE Colloquium London 2 papers	4	1. Signing for the Deaf using Virtual Humans 2. An Overview of ViSiCAST
26.6. 00	U Magdeburg Colloquium on Animation	40	Virtual Signing: Erste Bausteine auf dem Weg zur maschinellen Gebärdensprachproduktion im Projekt ViSiCAST (UH)
31/5- 2/6/0	52th MPEG Meeting, Geneva, CH	1	Participation to the AHG (<i>Ad-Hoc</i> Group) on <i>3D mesh profiles</i>
On goin g	The Post Office DDA Roadshows Sub-Postmaster Conference & Exhibition Permanent display at The Post Office Innovation Lab Permanent display at The Concept Store and Talking shop Royal Mail Customer exhibition several		1000 6000 500 200 1500

4.2 Articles Published, Press coverage, development web sites, etc.

<i>Date/ Type</i>	<i>Details</i>
4/2000	Visicast Public/Private interactive Website published. Provides details of the project, demos, interactive facilities, progress reports and members virtual work / admin area
2/2000	Journal paper: FIFF-Kommunikation 2/2000, Rolf Schulmeister (UH): ViSiCAST – Übersetzung in und Generierung von virtueller Gebärdensprache im Fernsehen und Internet, pp. 44-47
15/7/00	See Hear BBC2 Features programme for the Deaf Introduction to project to UK deaf community Seen also in Germany France and Netherlands
August	Article for British Deaf News being planned for August <i>Now that UK Deaf community have been advised of the project all partners are at liberty to publicise as agreed at the second consortium meeting</i>

5 – Main results

<i>Description</i>	<i>Details</i>
WP1 Partial MPEG-4 V1 Video encoder/decoder produced	<ul style="list-style-type: none"> • Demonstration of compression/quality performances on high-quality video sequences made at 3rd consortium meeting
WP3-1 Completion and evaluation of Constrained Post Office System	<ul style="list-style-type: none"> • A working system has been engineered which combines domain oriented robust speech recognition techniques with simple translation functions and the avatar animation. Evaluation results showed a quality where on average 61 percent (variation of 42 to 70 percent) of signs were deemed acceptable.
WP 2.1 Browser Plug in progress	<ul style="list-style-type: none"> • Translated the semantic components of the weather reports into Sign Language of the Netherlands (SLN). • UEA has produced a GML driven avatar (see WP5) that extracts information representing lexicon signs and calls up the appropriate sign files in the avatar. This version is able to handle streamed GML and demonstrates the underlying technology that will be required. The plan sees this milestone being completed at the end of September (M2-1).
WP4 Avatar Improved	<ul style="list-style-type: none"> • Upgraded hand and face models from laser-scanned original, use of transparencies for improved detail. Integration of software to control head position and eye-gaze of Avatar to better replicate natural discourse
WP5-10 Initial GML Definition written	<ul style="list-style-type: none"> • This milestone was added to the project plan to act as an essential spring board for others This focuses on representing signs through glosses. A DTD has been developed and checked with validating parsers. The initial version contains a prototype of HamNoSys sign representation that enables work to start early on the Initial Notation-Driven Avatar (M4-5).
WP7 Publicity Channels opened	<ul style="list-style-type: none"> • Channels finally established for regular unbiased communication with the deaf community Previously a very sensitive issue
WP8 Marketing and Exploitation Plan constructed	<ul style="list-style-type: none"> • Framework specifies steps to be taken and a timetable to adhere to in order to achieve a successful exploitation of each product resulting from project deliverables. It also • Identified the approximate size of the number of deaf signers in Europe (360.000 people) who will be the main end-users the VisiCast deliverables. • Specified potential market sectors and actors for the exploitation of the, broadcast, browser plug-in and face to face system • Specified ways and means to acquire the active support and co-operation from the deaf community.

Table 6.1 Effort for the reporting period (Decimal Man Months)

	Work Packages	1	2	3	4	5	6	7	8	TOTAL
Short Name	Staff Name									
ITC	Jan Dobson							1.81	1.88	3.69
IRT	Werner Brueckner	0.77								0.77
	Ittmann	0.29								0.29
TV	Steve Cullingford			0.1	0.77					0.78
	Ben Lambert				0.57					0.57
	Farzad Peshkapour		0.29							0.29
	Steve Pye				0.05					0.05
	Sanja Rankov	0.57			2.48					3.05
	Marcus Tutt	0.02	0.12	0.4	0.09					0.27
	Jamie Warren				0.57				0.04	0.61
	Mark Wells	0.57	0.57		0.34			0.23	0.11	1.82
UH	Volkert Backs					3.00				3.00
	Hortensia Popescu		1.30			0.20				1.50
UEA	Richard Kennaway					1.31				1.31
	Anne Anderson							0.78		0.78
	Mike Lincoln			2.62						2.62
	Eva Safar					1.80				1.80
	Nuno Dionisio			0.36						0.36
	Kevin Parsons					1.09				1.09
INT	Françoise PRETEUX	1.50								1.50
	Nicolas ROUGON				1.50					1.50
	Marius PREDA	0.50			2.00					2.50
	Titus ZAHARIA	1.40								1.40
IvD	Han Frowein		0.40					0.20	0.20	0.80
	Margriet Verlinden		0.90			0.20		0.20		1.30
	Rick van Dijk		0.90							0.90
	Erik Borgstein		0.40						0.40	0.80
UKPO	Jo Coy			0.1						0.10
	Rebecca Kent			0.3						0.30
RNID	Alan Kennedy			0.1						0.10
	Rebecca Kent			0.3						0.30
	Alan Kennedy			0.1						0.10
RNID	Amy Hunter					1.00				1.00
	Carolyn Richards					0.32			0.21	0.53
	Total	5.62	4.88	4.33	8.37	7.60	1.32	3.22	2.84	37.78

Table 6.2 Effort for the reporting period (person hours)

P No	Short Name	Work Packages								Total	
		1	2	3	4	5	6	7	8	P	A
		Staff Name	A	A	A	A	A	A	A	A	
1	ITC	Jan Dobson							235.0	247.0	482.0
		WP Actual Hours							235.0	384.8	482.0
		Planned Hours							197	197.0	394.0
2	IRT	Werner Brueckner	103.0								103.0
		Ittmann	39.0								39.0
		WP Actual Hours	142.0								142.0
		Planned Hours	312							312	
3	TV	Steve Cullingford			10.5	102.0					112.5
		Ben Lambert				75.0					75.0
		Farzad Peshkapour		37.5							37.5
		Steve Pye				7.5					7.5
		Sanja Rankov	75.0			326.0					401.0
		Marcus Tutt	2.0	15.5	49.0	12.5					79.0
		Jamie Warren				7.5				5.5	13.0
		Mark Wells	7.5	7.5		45.0			30.0	15.0	105.0
		WP Actual Hours	84.5	60.5	59.5	575.5	0.0	0.0	30.0	20.5	830.5
		Planned Hours	65.7	109.5	43.8	514.2	0.0	21.9	10.8	21.9	787.5
4	UH	Volkert Backs					430				430
		Hortensia Popescu		200.0			30				230
		Actual Hours Total		200.0			460				660
		Planned Hours		200.0			574				774.0
5	UEA	Richard Kennaway				180.0					180.0
		Anne Anderson						107.0			107.0
		Mike Lincoln			360.0						360.0
		Eva Safar					247.5				247.5
		Nuno Dionisio			50.0						50.0
		Kevin Parsons					150.0				150.0
		WP Actual Hours			410.0		577.5		107.0		1094.5
Planned Hours			413.0	413.0	481	138	0		1445.0		
6	INT	Francoise Preteux	190.8								190.8
		Nicolas ROUGON				190.8					190.8
		Marius PREDA	63.6			254.4					318.0
		Titus ZAHARIA	178.1								178.1
		WP Actual Hours	432.5	0.0	0.0	445.2	0.0	0.0	0.0	0.0	1094.5
Planned Hours	226.5			550	50				826.5		
7	IvD	Han Frowein		136			91		30		257.0
		Margriet Verlinden		225		44	69.0				338.0
		Rick van Dijk		153.0							153.0
		Erik Borgstein		91.0					50		141.0
		WP Actual Hours		605.0		44.0	160.0		80.0		889.0
		Planned Hours		636		64	122		90		912.0
8	UKPO	Jo Coy			17						17.0
		Rebecca Kent			45						45.0
		Alan Kennedy			17						17.0
		WP Actual Hours			79.0						141.0
		Planned Hours			33						33
9	RNID	Amy Hunter					152.0				152.0
		459.4 Carolyn Richards					48.0		30		78.0
		WP Actual Hours					200.0				230.0
		Planned Hours					365.7				367.5
Total Actual		659.0	865.5	548.5	1064.7	1197.5	200.0	372.0	485.3	5563.5	
Total Planned		604.2	945.5	489.8	1541.2	1227.0	525.6	207.8	308.9	5851.5	
Last Period Accum. Actual Total		604.2	945.5	489.8	1541.2	1227.0	525.6	207.8	308.9	3162.5	
Last Period Accum. Planned Total		599.0	790.0	433.0	950.0	1301.0	339.4	328.4	98.4	4839.2	
Accumulated Actual Hrlly Total		1263.2	1811.0	1038.3	2605.9	2424.5	725.6	579.8	794.2	8726.0	
Accumulated Planned Hrlly Total		1203.2	1735.5	922.8	2491.2	2528.0	865.0	536.2	407.3	10690.7	