

INVITED ARTISTS PROGRAM

RMIT Advanced Computer Graphics Centre

The Program is designed to provide a unique opportunity to artists who wish to establish links with the computer world and provide access to hitherto unavailable resources and expertise. It will concentrate on exciting and innovative experimental art projects that would otherwise not be possible.

1992 Program

- Robert Owen, collaborating with the ACGC's Barry Fowler - This project will result in sculptural pieces that have been designed and visualized using computer graphics techniques as well as 'virtual sculptures' that do not have a physical form. The project is in harmony with a major research goal of the Centre, providing a focus for the 'Virtual Environments for Free Form Design' project. This is ground-breaking research on the next generation of human computer interaction using direct gesture input and head mounted displays.

- Stelarc, collaborating with the ACGC's Mike Papper - The project will focus on the teleoperation of robotic manipulators in a Virtual Environment. The artist will explore performance possibilities with VR, following on from his internationally famous "Third Hand" events. The Virtual Arm will be a human-like manipulator with extended capabilities such as interchangeable left-handed and right-handed modes; continuous wrist rotation (clockwise and counter clockwise) and "stretching" or telescoping of limb segments. Commands such as "clutch" allow the operator to disengage from the virtual arm; "replicate" will enable the creation of another arm and "graft" will make possible the attachment of bits of an arm on the previous arm. Hand, State and Motion gestures control the Virtual Arm's motion. The project will also address interaction techniques for teleoperation which is significant research with industrial applications.

Proposed Projects for 1993

- Fiona Hall - This project will result in a photographic book funded by the Australia Council. It will utilize state-of-the-art computer graphics publishing techniques.
- Katie Pye - This project will involve an exhibition of furniture, fabric and clothing design using computer graphics technology.
- Carlier Makigawa - This project will involve the design and numerically controlled manufacture of sculptural jewellery pieces using 3D computer graphics. It may also involve innovations in the accurate rendering of metals and gems.

1991 Project

Paula Dawson, collaborating with the ACGC's Mary Lou Jepsen, RMIT Applied Physics' Phil Wilksch, and the Australian Museum in Sydney. This project entitled "You Are Here" required innovation in a number of areas including 3D modelling, computer-generated holography techniques, electron beam lithography and scientific visualization techniques. Work on the project is continuing with the Australian Museum and the University of New South Wales.

Minor Projects

- Art and Technology Forum

Ken Wach at the University of Melbourne organised a series of Forums with a number of eminent artists as speakers. It is proposed that the transcriptions of these talks be made into a book at the ACGC.

- Holography in Australia

Rebecca Coyle and Philip Hayward are researching and writing a book on holographic practices in Australia, with funding from the Visual Arts and Crafts Board of the Australia Council. This book is likely to be published by the University of Sydney, Power Institute of Fine Arts, in their prestigious "Power Publications" series.

It is proposed that hardware and software resources be provided to publish both of these books using state-of-the-art colour publishing techniques.

External Events

- 1992 ANAT Summer School

The ACGC hosted the 4th National Summer School run by the Australian Network for Art and Technology. The Summer School brings together artists from around Australia for exposure to and experimentation on Computer Graphics and Video. The Summer School ran over January, 1992.

- Next Wave Festival

The ACGC will be involved with the 1992 Next Wave Festival, offering some exciting demonstrations and seminars concerning the synergy of art and technology for a Youth audience in the Great Hall of the National Gallery of Victoria. The Next Wave Festival will take place from 15-18 May, 1992.

- The Great Australian Science Show

Stelarc will be performing the first Virtual Arm performance as part of this show which will take place at the World Congress Centre, Melbourne from 15-19 July, 1992.

- TISEA

The ACGC plans to be involved in the Third International Symposium on Electronic Art to be held in Sydney from 9-13 November 1992. The Centre will provide electronic support to the Conference via electronic mail and will also exhibit work from the Art Program and work by students at the Centre.

Stelarc, Invited Artists Program Coordinator for 1992

April 1992

STELARC

HOLLOW BODY/ VIDEO SHADOW

Event for Internal Probe, Involuntary Arm & Third Hand

24. UND 26. JUNI 1992

POSTHOF

Event Elements / Elemente der Veranstaltung:

SOUND - EEG (brainwaves), ECG (Heartbeat), EMG (muscles), Doppler (bloodflow), limb motion and position are amplified acoustically using biosensors-electrodes, ultrasound and angle transducers. Signals are preamplified into medical instruments and drive analogue synthesizers.

TON - EEG (Gehirnströme), EKG (Herzschlag), EMG (Muskeln), Doppler (Blutdruck); die Bewegung der Glieder und ihre Haltung werden mithilfe von Körper-Sensoren, Elektroden, Ultraschall und Leitungen verstärkt. Die Signale werden mit medizinischen Instrumenten vorverstärkt und steuern analoge Synthesizer.

LIGHTING - Tube lights, halogens and spot lights are modulated by EEG, EMG and ECG signals - triggered via computer program by body postures and gestures.

LICHT - Scheinwerfer, Halogenscheinwerfer und Spots werden durch EEG, EMG und EKG-Signale verändert und über das Computerprogramm durch Körperbewegungen und -haltungen ausgelöst.

LEFT ARM - Involuntarily jerked up and down by two muscle stimulators, applying voltage to the flexors and biceps for the whole duration at the event.

LINKER ARM - wird unfreiwillig ruckartig durch Muskelstimulatoren bewegt, indem während der ganzen Veranstaltung elektrische Spannung an die Flexoren und den Bizeps gebracht wird.

THIRD HAND - Activated by the EMG abdominal and leg muscle signals, producing grip, grasp, release and 290 degree wrist rotation C.W. and C.C.W. It has a tactile feedback system for a sense of touch.

DRITTE HAND - Durch das Unterleibs-EMG und Beinmuskeln aktiviert; kann sie greifen, halten, loslassen und 290 Grad Drehungen durchführen. Sie hat eine taktiles feed back System um auf Berührung zu reagieren.

ROBOT ARM - A 5 degrees-of-freedom industrial arm with video camera mounted is pre-programmed for surveillance and scanning of the body. It has torso rotation, shoulder, elbow and wrist flexion and wrist rotation.

ROBOTERARM - ein Industrieroboter mit 5 Freiheitsgraden der Drehung und einer montierten Video-Kamera wurde vorprogrammiert, um den Körper zu überwachen und abzutasten. Der Roboter arbeitet mit Torso-Drehung, Schulter-, Ellbogen- und Handgelenksflexion und Handgelenksdrehung.

INTERACTIVE VIDEO - Mercury switches on the head and arm acting as position indicators, allow the body to become the video switcher. An endoscope inserted into the body and coupled to a camera provides live internal pictures of the stomach. Images are switched and superimposed - composed and choreographed by the body.

INTERAKTIVES VIDEO - Bleischaltungen auf dem Kopf und dem Arm agieren als Indikatoren für die Position und machen es dem Körper möglich, zu einem Video-Switcher zu werden. Ein Endoskop, das in den Körper eingelassen ist, und an eine Kamera angeschlossen ist, übermittelt live Bilder aus dem Magen. Die Bilder werden hin- und hergeschaltet und überlagert - vom Körper komponiert und choreografiert.

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LIGHTING COORDINATOR: Nathan Thompson

TECHNICAL ASSISTANCE:

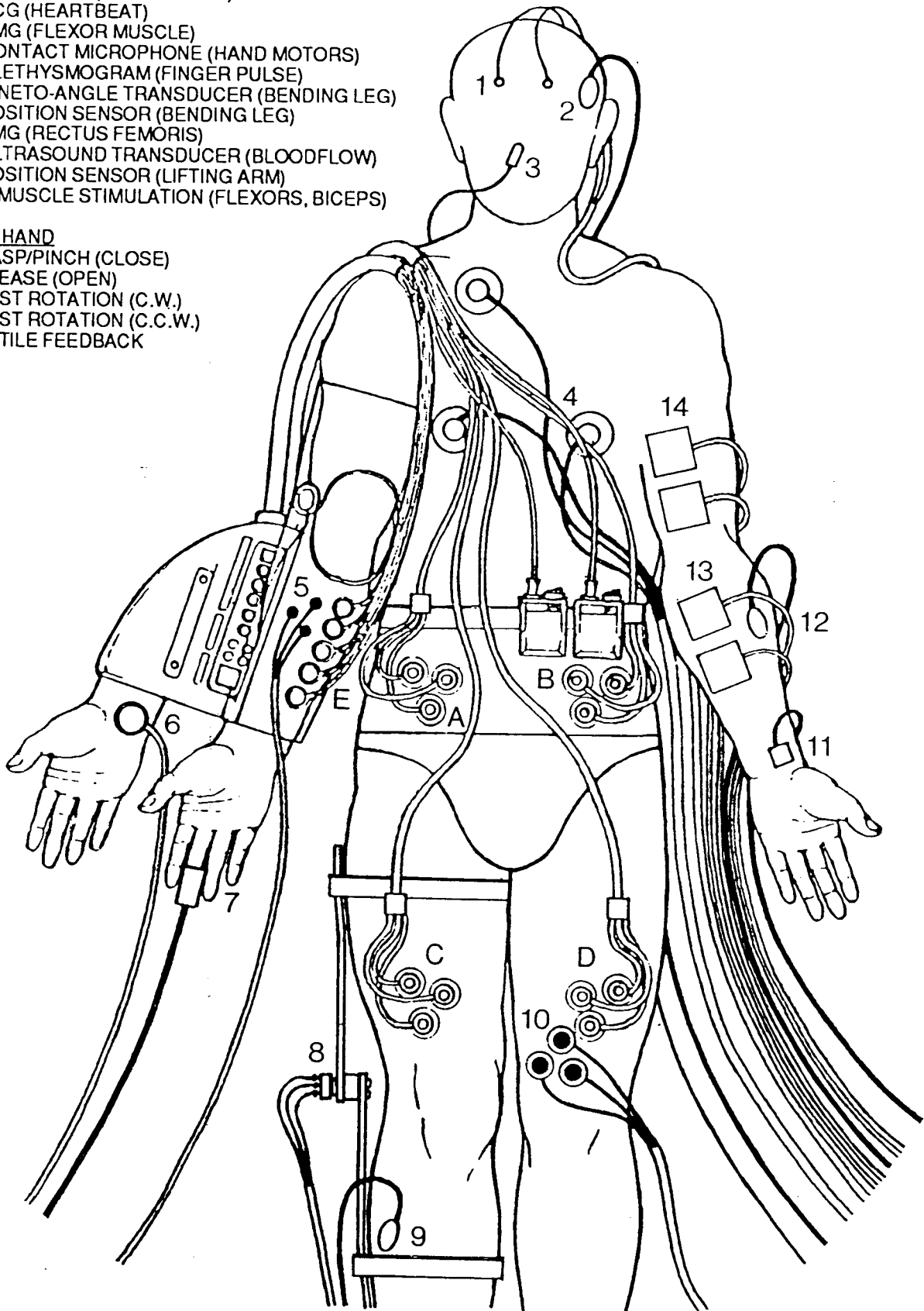
Video Installation: Chris Althaus

Photo: ...

1. EEG (BRAINWAVES)
2. POSITION SENSOR (TILTING HEAD)
3. THERMISTOR (RESPIRATION)
4. ECG (HEARTBEAT)
5. EMG (FLEXOR MUSCLE)
6. CONTACT MICROPHONE (HAND MOTORS)
7. PLETHYSMOGRAM (FINGER PULSE)
8. KINETO-ANGLE TRANSDUCER (BENDING LEG)
9. POSITION SENSOR (BENDING LEG)
10. EMG (RECTUS FEMORIS)
11. ULTRASOUND TRANSDUCER (BLOODFLOW)
12. POSITION SENSOR (LIFTING ARM)
- 13,14. MUSCLE STIMULATION (FLEXORS, BICEPS)

THIRD HAND

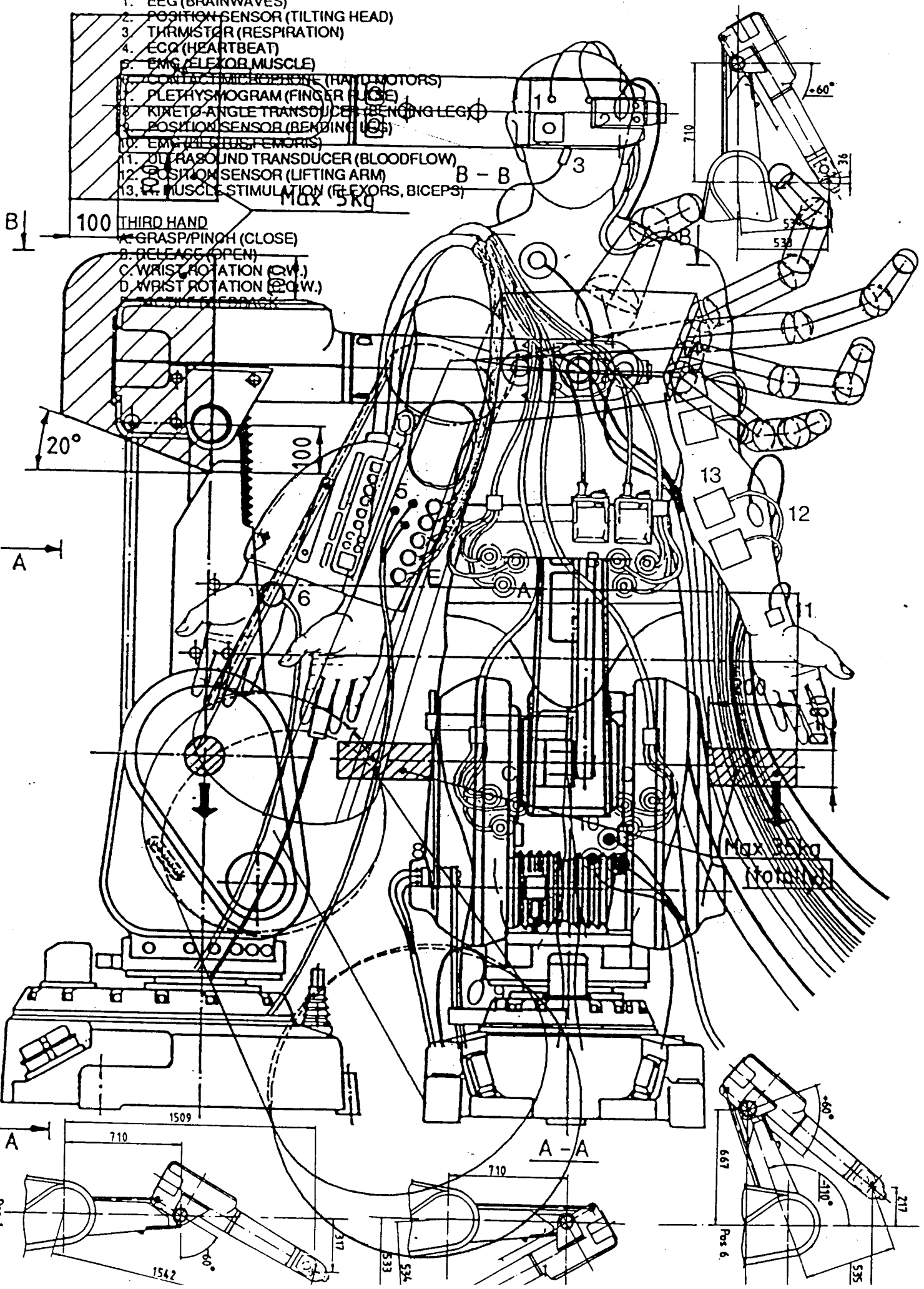
- A. GRASP/PINCH (CLOSE)
- B. RELEASE (OPEN)
- C. WRIST ROTATION (C.W.)
- D. WRIST ROTATION (C.C.W.)
- E. TACTILE FEEDBACK



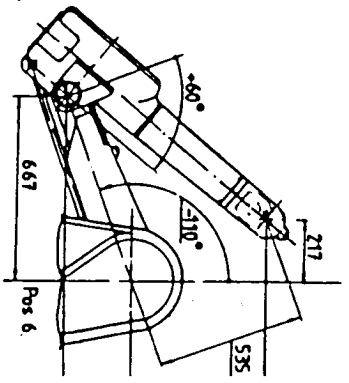
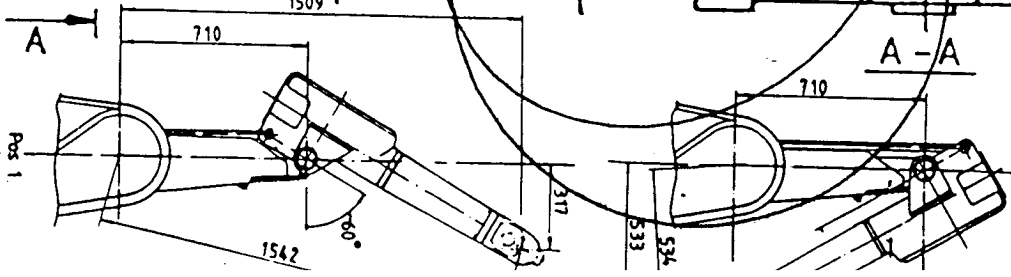
AMPLIFIED BODY/ THIRD HAND

1. EEG (BRAINWAVES)
2. POSITION SENSOR (TILTING HEAD)
3. THERMISTOR (RESPIRATION)
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6. CONTACT MICROPHONE (HAND MOTORS)
7. PLETHYSMOGRAM (FINGER FLOW)
8. KINETO-ANGLE TRANSDUCER (BENDING LEG)
9. POSITION SENSOR (BENDING LEG)
10. EMG (FLEXOR FEMORIS)
11. ULTRASOUND TRANSDUCER (BLOODFLOW)
12. POSITION SENSOR (LIFTING ARM)
13. ELECTROMUSCLE STIMULATION (FLEXORS, BICEPS)

100 THIRD HAND
 A. GRASP/PINCH (CLOSE)
 B. RELEASE (OPEN)
 C. WRIST ROTATION (CW.)
 D. WRIST ROTATION (CCW.)
 E. WRIST FLEXION/EXTENSION



Max 5kg
 Normal



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TECHNICAL ASSISTANCE:

Video Installation: **Chris Althaler**

Robot: **Harald Kramener**