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Digital Identification for Humanoids

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Abstract - *A digital identity is information on an actual entity which is used by computer systems for representing an external agent. This agent could be anything or anyone likely a person, organization, device, or application. Digital identity is truly and sensibly established as one of the most significant technology trends we could ever have. It is in fact a day-to-day reality for the ever-growing numbers of the stakeholders and Citizens. Where we stand today, the purpose of digital identities is spread across, most of major discussions refer to "digital identity" as a huge collection of information generated by a person's online activity. It bears all possible passwords, usernames, online searching, birth date, social security, and purchase history. Storing the cookies of user's search activities over the internet aids in Digital Identification. Digital identity basis dynamic entity relationships across multiple websites and mobile apps verifies and authenticates an identity up to 95%.*

Key Words: Digital, Behaviour, Identity, Robots, Machine

1. INTRODUCTION

1.1 EIDV Industry:

Up-to-date database with high-quality often leads to an effective EIDV service. There are also databases more accurate than others depending on when and how they are being updated.

1. Verifications via Biometric verification
2. Learning Machine
3. Verification of Social Network
4. Verification of Video face
5. Verification basis Behaviour

With above mentioned technology, Model Identification and Control Design of a Humanoid Robot can also be done on a dead resource.

A Humanoid can be called something resembling a human with characteristics like opposable thumb, ability to walk, talking and more. Humanoid robots built to resemble a male human are Androids, and humanoid robots built to resemble a human female are Gynoids.

2. DIGITAL IDENTIFICATION - LITERATURE REVIEW

2.1 Biometric systems:

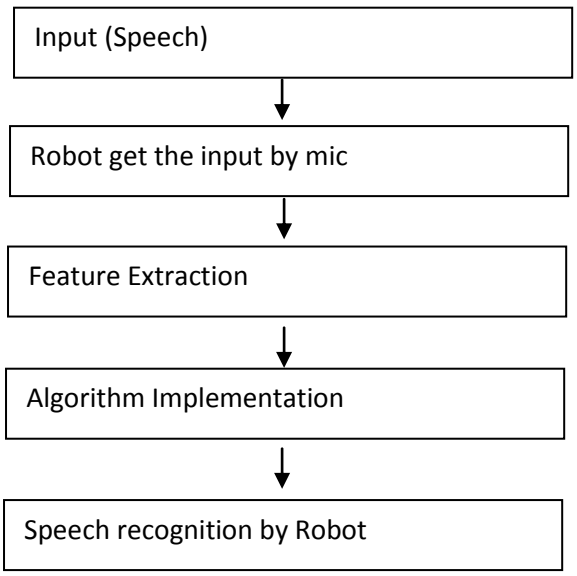
Listed below some approaches that aid in to design for performing, precise functionality by a humanoid after considering the human's exact physiological or behavioral patterns.

2.2 Face recognition: Captures specific facial properties of the user with analyzing of the facial symmetry and features. 3D face recognition patterns can acquire higher accuracy than their 2D counterparts. 3D face recognition can achieve better accuracy than 2D, with help of geometry of its features. Another approach is using 3D models to improve on the accuracy of traditional image based recognition by transforming of the head into a familiar view. Moreover, most of the 3D scanners usually get both 3D mesh and corresponding texture.

2.3 Hand geometry: A biometric which identifies users basis their hand shape. It measures a user's hand along many dimensions and compares those measurements to those stored in a file. Very reliable when combined with different forms of identification, like identification cards or personal ID numbers.

2.4 Keystroke: This recognition is defined by both industry and academics as a process of measuring and assessing a typing rhythm on digital devices. Like on computer keyboards, mobiles, with touch screen panels. Keystroke dynamics follow unique biometric template to identify individual's basis typing patterns, rhythm and speed.

2.5 Speech recognition: It's the ability of a machine or program to recognize words/phrases in spoken language and get them converted a machine-friendly format. Its performance is measured by accuracy and speed while accuracy is measured with rate of word errors.



3. THE METHODOLOGY

3.1 Gait algorithm:

It is based on a person's specific way and style of walking. It is the process where features of human motion are automatically extracted and later on they enable us to authenticate identity of the person in motion. Alike other pattern recognition techniques, this technique too has 2 stages: Where info is derived from human locomotion in the first stage i.e. stage of feature extraction and in the next stage, i.e. stage of recognition, a similarity computation technique is used to get results for being a match or mismatch. A special benefit of gait as a biometric is that it gives potential for recognition at a distance or even at low-resolution or when other biometrics might not be doing so. The biomechanics' literature makes same observations "A given person will perform his or her walking pattern in a nearly repeatable and characteristic way, quite unique that it is possible to know about some person at a distance with help of their gait". It aims to recognize a person by automatically extracting movement characteristics of the walking person in the video shot. This analysis has measurements, where parameters measurable are introduced, analyzed and interpreted, and the conclusions about the subject on health, age, size, weight, speed are made.

They are calculated basis properties like stopwatch, marks on the ground, walking on pressure mat, range laser sensors scanning a plane above the floor, inertial sensors and software that interpret 3D gyroscopes and 3D accelerometric data.

3.2 Hmm

Hidden Markov Model (HMM) can be called a statistical Markov model, which has the system being modelled and is assumed to be a Markov process, but with unobserved states. These are specifically taken in consideration for their way of application of reinforcement of learning and temporal pattern-recognition like that of handwriting, speech, gesture, musical score following, partial discharges and bioinformatics.

4. DESIGN AND DEVELOPING

4.1 Gait Recognition: The complete design of the gait recognition system can be divided into two parts, hardware requirement and software environment.

4.2 Hardware Requirement: This is the main part of the system. The hardware that is required to accomplish this task, is actually a personal computer and a video camera with higher resolution quality that captures the video from which the frames are to be extracted.

4.3 Software Requirement: Software that is considered to implement this work is MATLAB. It is a high-level language and interactive environment for numerical computation, visualization, and programming. This application is built around the MATLAB language, and most use of MATLAB involves actually typing MATLAB code in the Command Window or executing text files containing MATLAB code and functions.

5. SENSORS AND ACTUATORS

Technical Component: Sensors and Actuators are two most important components of actual Humanoid Robots. Sensors are devices sensing something, more of environmental parameters like heat, sound, light, temperature and physical-physiological parameters like movement, orientation and others.

Now, actuators are motors which are directly responsible for the motion and movement of the robots. The position, orientation and speed of the humanoid's body and joint are sensed by the proprioceptive sensors consisting accelerometers, tilt sensors, etc. In humanoid robots, CD cameras are used for capturing information on image while microphones and speakers are used for sound reception and production respectively.

Actuators are used to perform as the joints and muscles. Usually, humanoid robots use rotator actuators to get the effect as human motion. The actuators can be pneumatic, hydraulic, electric or even ultrasonic.

6. CONCLUSION

With the usage of the above techniques and methods, the future can possibly be called as a 'Clone world'. It would be so because there is possibility of every dead to get cloned and continue living in the existing world as a Humanoid, with the help of modern technology like artificial intelligence, machine based learning and of course digital identification. In that future, what is required is only a storage device of human personalities who are no more and which can be installed digitally and downloaded into new humanoid bodies "Sleeves". This makes death no longer permanent.

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