

World's greatest android projects

Latest update: 09/13/2004 - Updated Kibertron (#6)

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1. Honda Motor Co (Tokyo, Japan) has a new walking android called [Asimo](#) (Advanced Step in Innovative Mobility). This android is 1.2m tall (47.25"), 0.45m wide (18"), and 0.44m deep. Asimo weighs 43 kg (95 lb.) and has 26 DOF. [Specs in Japanese are here](#) and [specs in English are here](#). English version [Asimo site](#). It has three pages of descriptions of the robot technology at [page1](#), [page2](#), and [page3](#). Asimo [movies](#) using a [new media viewer from Viewpoint](#). **A new version of Asimo is now available which understands human gestures and movements and which moves its head to follow the speaker. It will rent for 20 Million Yen per year (\$166,666) or \$17,000 per day.**

(*UPDATED 01/14/04 *)



2. [Honda Motor Co](#) P3 - Humanoid robot: [P3](#) was finished in September of 1997. This android is 160 cm tall (5'3") and weighs a mere 130Kg (=286 pounds).



57KB



38KB

Here is an [index of P3 events](#) with lots of pictures. Four events are listed: [event1](#), [event2](#), [event3](#), [event4](#).

Here are some [MOVIES](#) of the robot.

3. Honda Motor Co - P2 Humanoid

Honda built a battery powered android which can walk like a person and can even walk up and down stairs. It looks like an astronaut in a spacesuit. It stands about six feet tall and it weighs about 460 pounds. Honda spent 10 years developing this android which was introduced in Tokyo, December 20, 1996.

Honda has now revealed that they spent more than \$100 MILLION (US) on that project.. This android is referred to internally as P2. Staff: unknown, project estimated to be at least 200 man years.

4. Honda Motor Co. showed the original P1 android at [Robodex 2000](#). It is 1.915 meters tall and weighs 175 Kg. Here is a link to [100 pix from Robodex 2000](#). Fortunately, you can understand a picture in any language. Honda apparently built 7 experimental walking robots BEFORE P1. Here is a [link to E0 - E6](#).



What's New
Home



104KB

The original P1.

5. Fesco, the pneumatics experts, have built a [huge android called Tron X](#). This android stands about 2.8 m (9 feet) tall and weighs about 300 Kg (660 lbs). It is operated by over **200** pneumatic cylinders of all different sizes. [Aparently this android was built in Australia in 1997](#). Perhaps the current model is a second version??



Tron-X - 200+ DOF

6. A company called **Kibertron Inc**, located in Sofia, Bulgaria has a full scale humanoid project called [Kibertron](#). Their android looks like a terminator. It is 1.75m tall (5' 9") and weighs 90 Kg (200 pounds). [They have a staff of 23](#). Kibertron has 82 DOF - that's a lot. The hands have 20 DOF each and the arms have 8 more DOF for a total of 28 for each arm & hand.

[Here is their project outline](#). (* Upd 09/13/04 *)



front & back



arm & hand

7. **September 10, 2001 Fujitsu Laboratories Inc announced their toy android called HOAP-1**, an 18" tall 13 pound android with 20 degrees of freedom. The cost is \$41,000 or 4.8 million Yen. Now they have announced [another android called the HOAP-2](#). Its about the same size. (* **NEW** *)



8. On Sept. 19, 2003 Sony announced another [small humanoid called QRIO](#). Its quite similar to the SDR-4X. It can walk better and can recover from falls better. (* **NEW** *)



QRIO

HOAP-1**HOAP-2**

9. **Sony introduced the SDR-4X for Robodex 2002.** Great new android to compete against the HOAP-1. [Movies.](#) [Many pictures.](#) [Article & more pictures.](#)



10. **Kawada Industries Inc. has introduced the HRP-2P for Robodex 2002.** This humanoid appears to be very impressive. It is 154 cm (60") tall, weighs 58kg (127 lbs) and has 30 DOF. Here is a [news release](#). Notice the LACK of a battery pack. Here is a [new story about HRP2](#).



11. [Toyota Motor Company](#) announced their long awaited **SUITE** of androids on [March 11, 2004 in Tokyo](#). They plan 4 models (shown on this and the next 3 entries) They are called partner robots and are designed to function as personal assistants for humans. The first one is [the walking version](#). This android is 1.2m (4') tall and weighs 35 Kg (77 lbs). It is intended to assist the elderly.



[Japanese page](#)

12. Toyota plans to show their androids for the first time at the [EXPO 2005](#) Exhibition of Global Harmony which will take place next year (from March 25, 2005 to September 25, 2005 in Aichi, Japan). The second model is [the rolling version](#). This humanoid rolls around on wheels but has a human-looking upper body. It is intended for manufacturing purposes. It is 1m (40") tall and also weighs 35 Kg (77 lbs).



[Japanese page](#)

13. Toyota's third model is **easily the most unusual robot of the group**. This model is called the [mountable version](#). It is basically a **chair which can WALK!** WOW! What a

14. The fourth model being produced by Toyota is a [wire-operated version](#). No data were given about its size or weight. It is lighter

concept! It stands 1.8 m (6') tall and weighs 75 Kg (165 lbs). Notice that the person in the chair is wearing a crash helmet. One hopes that the helmet will not be necessary.



[Japanese page](#)

15. [Two new humanoid robots called ARNE and ARNEA were announced August 5, 2003 in Russia.](#) They were built by a St. Petersburg company called New Era and students from the St. Petersburg Polytechnic University. These humanoid robots stand 1.23 m (4') tall and weigh 61 Kg (134 lbs). They have 28 DOF. The project, led by Alexander Yakovlev of the Robot Technical Sector of New Era, has been running for two years.



17. [Beijing Institute of Technology](#) has a big humanoid project called BHR-1. This android is 1.58 m (5' 2") tall and weighs 76 Kg (167 lbs). It has 32 DOF. It can walk at 1 km/hr with 33 cm steps. The project leader is Prof. Li Kejie. Other staff include Qiang Huang,

than the others and can move more quickly. **Toyota has movies of their robots in action on their site.**



[Japanese page](#)

16. [Kawasaki Heavy Industries, Tokyu Construction Co., Ltd., National Institute of Advanced Industrial Science and Technology \("AIST"\), and Honda](#) have a new project called [HRP-1S](#). The humanoid was built by Honda and the control software was developed by the AIST. [This article shows the humanoid operating a backhoe.](#) We assume the humanoid has the same number of DOF as Honda's Asimo or P3.



18. The [Aircraft and Mechanical Systems Division of Kawada Industries Inc.](#) built the H7 android for Univ of Tokyo. They have now started a project of their own using some of the same technology from H6 & H7. Its called

Yuechao Wang, Min tan, Tianmiao Wang and Jinsong Wang. This android appears to be very advanced and also similar to several of the Japanese androids shown above.



BHR-1

19. Hiroaki Kitano of [Kitano Symbiotic Systems \(Tokyo, Japan\)](#) which is a subsidiary of Japan Science and Technology Corp (see the entry on the left - #11) which is in turn funded by the Japanese government is building an android which he calls SIG (Symbiotic Intelligence Group). The photo below shows SIG and Tatsuya Matsui. Kitano has challenged the world of android builders. He believes that his android will be the archetype. We shall see about that. By the way, they are [looking for people](#) to join their project.



Matsui-san and SIG

21. Kitano now has another small android called [Morph3](#). It is 38 cm tall (about 15 inches), has 30 DOF and weighs about 2.4 Kg = 5.3 pounds. It is also using Bluetooth communications.

[Isamu](#).



Isamu is 1.5 m (5') tall and .6 m wide and weighs about 55 Kg (121 lbs). It has 32 DOF and you can see that the head is more anthropomorphic than H6 or H7.

20. Hiroaki Kitano of [Kitano Symbiotic Systems \(Tokyo, Japan\)](#) which is a subsidiary of Japan Science and Technology Corp which is in turn funded by the Japanese government is building an android baby called Pino. Pino has 29 motors and stands about 75 cm (30") tall and weighs 8 kg. Here is [a link to a Time Magazine article](#). A [new Pino link](#) I recently found. **WOW! Kitano is now giving away software and hardware designs which were used for Pino. Just go [HERE](#) and sign up.**

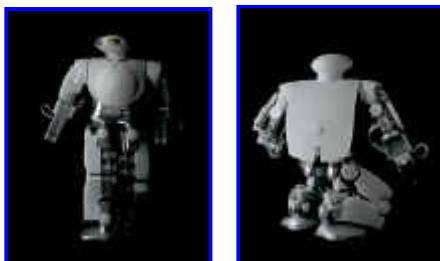


Pino - 8KB

[SIG design link](#)

[PINO design link](#).

22. Early in October of 2001, [Kitano Symbiotic Systems](#) announced another project called "Morph". Morph uses the [Bluetooth wireless communication](#) protocol to pass commands to the android and to send feedback from the android back to the main computer. [Here is another article](#). Murata is a co-developer in this project. Morph has 26 DOF and stands about 13.6" (35cm) tall. My best source, Gianluca sent me some [links with pictures](#).



Morph3



23. The [Electrotechnical Laboratory](#) in Tsukuba, Japan is building a humanoid at the Humanoid Interaction Laboratory under the direction of professor Yasuo Kuniyoshi. Their [humanoid](#) is called Jack, Their android has cost way over \$1,000,000 - and its still not finished yet. Jack was also featured in this month's [Wired Magazine](#) article about Androids. (Sept. 2000, pgs 252 - 272). The legs are just barely visible in the background. Gordon Cheng just sent me another picture of "Jack" and a [link to a nice article](#). Jack has 46 DOF.

24. Tohoku University now has another project called "Saika3". This android looks alot like the Honda androids. It is 1.27m tall and .5 m wide and weighs 47Kg. [Saika3](#) has 30 DOF



Saika-3 Group

25. [Jouhou System Kougaku](#) laboratory at Tokyo University has a new project called H7. Its another biped similar to H6. [Another H7 link](#). (<=New link)

26. [Jouhou System Kougaku](#) laboratory at Tokyo University has a project called H6. Its similar to H5.



H6 is 1.37 m (4'6") tall, about .59 m (23")

H7 is clearly very similar in size and capabilities to H6. They have an 18Meg video of H7 walking at the Kawada Industries airport where the above pictures were taken.

27. Osaka University has a [bipedal walking robot project](#). This project is under the direction of Prof. Junji Furusho at the [Furusho Laboratory](#). They have at least 20 total [participants](#). Below is an image of their bipedal walker - called Strut.



14KB image

29. It appears that there is a [big android project](#) going on at Institute for Applied Mechanics at the Technical University of Munich (TUM). Their android is called "Johnnie" and it can already walk. They are now trying to make it RUN. This means there are two major projects in Munich. Johnnie was on display at the Hannover Fair this spring. They have two videos on their site.



wide, and weighs 55 kg (121 lb). It has 35 DOF.

Note: Saika and H5 have been moved to the [Historical Android Projects](#) page.

28. Prof. Gordon Wyeth and several of his students have started a project called [GuRoo](#) (for Grossly Underfunded Roo) at the [University of Queensland](#), in Brisbane, Australia. GuRoo will have [23 degrees of freedom](#) and will stand 1.2 m tall. Its projected weight is 30kg. Guroo participated in the recent Robocup 2002 in Japan. [The team](#) has 6 people. One of the team members, Damien Kee, has posted [some videos of their android taking its first tentative steps](#). Neat!



30. [Japan Science and Technology Corp](#) (Kyoto, Japan) has recently revealed a 5 year project to build a humanoid robot. This project began in October of 1996. The project leader is Dr. Mitsuo Kawato and they have a staff of about 18. Their humanoid robot is called [DB](#) (see below).



32KB image

32. [Waseda University Humanoid project](#) (Tokyo, Japan) Their android is about 6 feet tall and weighs over 600 pounds. It can walk,

31. [The Shadow project](#) (London, England) This group is developing a [humanoid bipedal walking machine](#). They also have several products for sale. Their [staff](#) includes about 14 people. Below is an image of their bipedal walker.



208K

but just barely. Both this android and Honda's android were featured on the PBS program called "Robots Rising" which aired three times in March, 1998. The Waseda Humanoid project is composed of six groups:

- [Harmonized Human Machine Environment Lab](#)
- [Integrated Mind-body Mechanism Lab](#)
- [Intelligent Machine Lab](#)
- [Cyber Robotics Lab](#)
- [Meta Communication Lab](#)
- [Perceptual Computing Lab](#)

Below are images of Hadalay-2 and Wabian.



33. National Institute of Advanced Industrial Science and Technology in Tokyo (AIST) supports 15 research institutes throughout Japan including the 8 in Tsukuba Science City north of Tokyo. They are sponsoring a [humanoid project](#) which was begun in 1998. They actually have a [large number of projects](#).



Above we see a P3 and on the right are the legs of HRP learning to walk.

34. [Chalmers University](#) also has a full scale android project called [Priscilla](#) which was started in the summer of 2000. She is based on a full sized skeleton of a human. She will be powered by hydraulic cylinders. You can see that she has binocular vision.



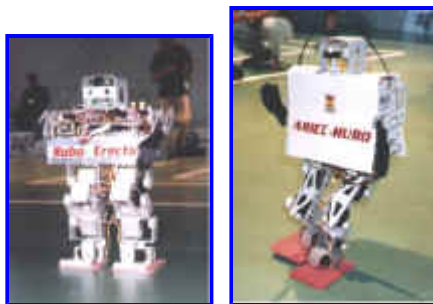
Priscilla.

35. The [Machine Control Laboratory at KAIST](#) at Teajon, Korea has another humanoid project called the [KAIST Humanoid Robot \(KHR-1\)](#). This project began in January of 2002 and now includes [Prof. Jun-Ho Oh and 12 students](#). The KHR-1 stands 1.2 m tall and weighs 48 Kg. It has 21 DOF and can walk.

There are videos on their site. (* NEW *)



36. The ARICC (Advanced Robotics and Intelligent Control Centre) in the School of Electrical and Electronic Engineering, Singapore Polytechnic has a [major humanoid project](#) going in which they are building soccer playing humanoids. They have built several humanoids, the latest of which is called Robo-Erectus III. It stands 50 cm tall and has 22 DOF. The project includes about [15 members](#) and is lead by Prof. Changjiu Zhou.



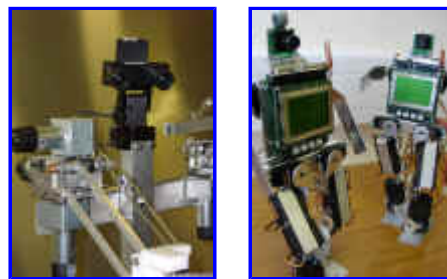
38. Tohoku University also has a [bipedal walking robot project](#). This project is under the direction of Prof. Takashi Emura at the [Emura Laboratory](#). They have [4 professors and about 20 students](#). Their goal is to build a human-type autonomous robot. They have been working on the project for at least a year. Below is an image of their bipedal walker - called Monroe after Marilyn Monroe. [NEW PIX](#)



17KB image

40. [A Chinese android was announced December 1, 2000](#). This android is 1.4 meters (55 inches) tall and weighs 20kg (44 lbs). It

37. Imperial College London have [two humanoid projects](#). They have an upper half of a humanoid similar to COG - called [Ludwig](#). They also have two small humanoids called Flip & Flop which stand about 14" tall. They have movies of Ludwig. The primary builders are: Murray Shanahan, Yiannis Demiris, Dave Randell, and Mark Witkowski.



Ludwig

Flip & Flop

39. The [Politecnico di Torino](#) has a major humanoid project. It is called [Isaac](#). The leader is Prof. Guiseppe Menga and 7 students are also working on the project. Isaac is about 61 cm (24 inches) tall and weighs about 7 kg (15 pounds) It has 16 DOF and it is driven by a PC104. Their humanoid won 2nd place in the Robocup 2003.



Isaac & team.

41. [Chalmers University in Goteburg, Sweden](#) has 3 projects now. They have the [Elvis project](#)

was built at China Science and Technology University for National Defense in Changsha, Hunan, China. Apparently they built another android back in 1990. They say "Pioneer" can walk and speak in several languages. See above article for details.



Pioneer (14KB)

which is now working with their second prototype, and a new small walking android called [Elvina](#). Their [staff](#) is about 13.



Elvis #2



Elvina

42. Massachusetts Institute of Technology - [the COG project](#) Cambridge, Mass, USA This project is developing a humanoid too. Their humanoid has a head with four eyes (two for close up and two for distance), two arms and a torso, but it has no legs yet. They have [two professors and about 7 students](#). They also claim about 10 alumni. The project leaders are Rodney Brooks and Lynn Stein. Some of the best pix of COG are on [Rodney Brooks home page](#). Below are images of COG and a close-up of its head (with 4 eyes).



42b. The [MIT leg lab](#) has built a set of legs which is intended to be married to the COG torso soon. The legs, called the M2 project, are featured in this month's [Wired Magazine](#) article about Androids. (Sept. 2000, pgs 252 - 272).



111KB

43. MIT has a new project called [Coco](#). It is supposed to be a small or perhaps a baby gorilla. It has 15 DOF and weighs about 20 pounds. Coco is about 12" (30 cm) square.



44. Yokohama National University has a [bipedal walking robot](#) project too. This project is under the direction of Prof. Atsuo Kawamura at the Kawamura Laboratory. They have at least 5 [staff members](#). Their goal is to build a human-type autonomous robot. They have been working on the project for at least a year. Below is an image of their bipedal walker.



19KB image

45. Kokoro Dreams and Osaka University announced a sitting android Nov 19, 2003 at the [International Robot Exhibition 2003 in Tokyo](#). This android is called [Actroid](#) and it is VERY realistic. **Actroid specification:** The system consists of three separate units: **Humanoid part:** Height = 1.3m; width = 0.42m; sitting length = 0.725m; weight = 30 Kg. The android has **31 DOF**. It operates on compressed air and electricity (120w). **Control unit:** Height = 0.6m; width = 0.75m; length = 0.6m; weight = 40 Kg; contains main computer. **Compressor unit:** Height = 1.37m; width = 0.9m; length = 0.9m; power consumption = 3.7 kw; noise < 50 db.

Here is a [movie of Actroid](#). Here is [another article](#) about Actroid.

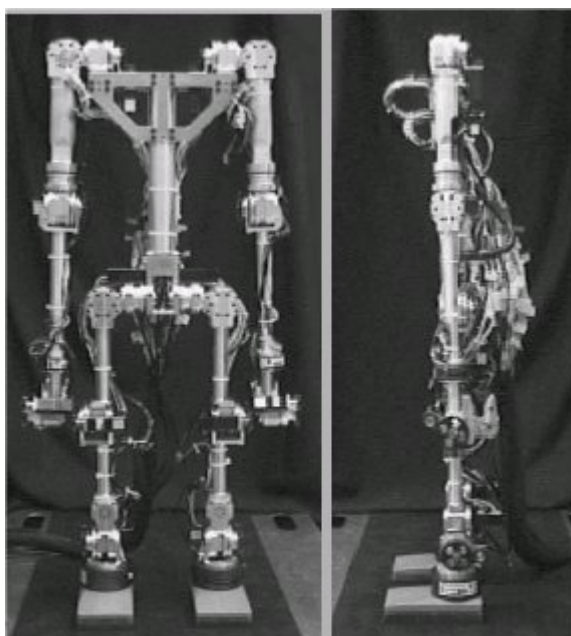


Actroid

with friends.

46. [Fukuda Lab](#) at Nagoya University has a project called the [Biological Inspired Robot System \(BIRS\)](#). Their robot appears to be about 1.5 m tall and has 20 DOF. They have a staff of [four professors and about 30 students](#) working on it. (* **NEW** *)

47. The [Korea Maritime University](#) of Pusan, Korea has a major bipedal android project under way. It looks quite similar to some of the Japanese projects such as the Tohoku University project (see #20 above). Here is the link - in [Korean](#) or [English](#).



48. Here is the first Iranian android. It is called

[Firatelloid](#) (First Iranian Intelligent Humanoid). They have some movies on their multi-media page. The principal developers are Mohamad Shayganfar and Benjamin Fonooni from the [Azad University of Arak](#). (Arak, Iran).



Firatelloid.

50. The [Humanoid Robotics Laboratory](#) in Linz, Austria has built a [Barbot](#) - an anthropomorphic robot which buys beer at the bar and DRINKS it! This is the first humanoid I have seen which eats or drinks anything. They are taking suggestions on how to convert the beer into power to run the robot. It is 1.7m tall and weighs and 30 Kg. Barbot has 7 DOF and can be booked for your party or event. (* NEW *)



Barbot - Linz, Austria

52. [Waseda University Humanoid project](#) has another project called "Wendy". "[Wendy](#)" is similar to Halady. It has a total of 52 DOF. Beware that their text is in white, so it won't print out correctly - at least on a color printer. Here is a picture of Wendy.

49. Here is the "[Headless Horseman](#)" of the Castrol Motorcycle company of Pangbourne, UK. The robot was actually built by Stahle GmbH of Neuhausen, Germany.



This robot has two arms and two legs and is mounted on the motorcycle.

51. The [Amorphic Robot Works](#) of Munich Germany has built a moving human skeleton which they call [Skelli](#). It is the size of a normal adult and has 34 DOF including 16 in its face. An advanced telemetry suit will allow a participant to teach the machine behaviors. Designed to reflect commonality with humankind, some of the expressions this humanoid machine will manifest are fear, anger, joy, sorrow, surprise and impatience. (* NEW *)



Skelli with Chico MacMurtrie



Shoulder detail of Skelli.

53. Now Waseda University has another project called [iSHA](#). This humanoid has 26 DOF which are mostly driven by electric motors. It can operate autonomously for 2 hours. WOW! Very impressive!



Image is 42K.



iSHA.

54. Waseda has another project (which I finally found) called [Robita](#). It is designed to conduct conversions with people. They have several movies on [Yosuke Matsusaka's page](#). This project has been active since June 1999.



Robita

55. Waseda University also has a project called [Wamoeba](#). Its being built at the Sugano laboratory. It seems there have been 3 versions since 1995. The picture below is the latest - called Wamoeba 2Ri.



Wamoeba - 2Ri

56. A Humanoid Robot System is being developed at the [Intelligent Robotics Research Center](#) of the Korea Institute of Science and Technology in Seoul, Korea. The goal is to build a human-like autonomous robot. The name of this project is [CENTAUR](#) - after the half-human half-horse from Greek mythology - and it has 4 legs. Current staff is 14. The picture below is the human upper body part. They also have a vision eye coordination project [here](#). (* Fixed links 09/11/03 *)



57. The [Artificial Intelligence and Media Lab](#) of the [Korea Institute of Science and Technology](#) now have two projects under development. They have the [AIM project](#) and the [AIMET project](#). They are being developed on the Taejon Campus in Taejon, Korea. They have some video clips to look at too.



AIM



AIMET (left), AIM (center)

58. The [University of Florida](#) has a humanoid project at their [Machine Intelligence Laboratory](#), Gainesville, Florida. Their humanoid is called [Pneuman](#). Professors included are: Antonio Arroyo, Michael

59. [Anybots of Mountain View](#), California has a full scale [humanoid project under way](#). It appears that each leg has 7 DOF. They have a video of their legs balancing vertically. They

Nechyba, Eric Schwartz. There are also [many students working on the project](#). The humanoid is 59 inches tall, weighs 102 lbs and has 25 DOF. Here is [another article](#) I found.



Pneuman.

also have prototypes of hands. (* **NEW 08/29/2004** *)

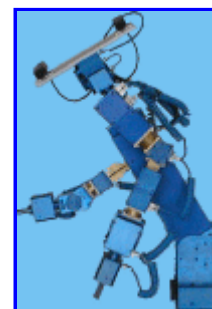


60. The University of Karlsruhe in Germany has a [big project called SFB 588, a humanoid robot](#). Their robot doesn't have legs yet but it appears to have very capable hands with about 15 DOF for each hand. Thus the overall number would be between 40 & 50 DOF.



Nice hands.

61. The Institute of Measurement Science at the Bundeswehr University of Munich (Germany) has a big project called [Hermes](#). My appologies to them for not listing them long ago. This project has been going since 1996. The principal investigator is Rainer Bischoff and there are [7 other staff members](#) and about 35 past staff and students who have worked on the project. They have made good progress.



62. Carnegie Mellon University (CMU) and the University of Pittsburg started a major project called the [Nursebot](#), with a \$1.4 million grant from the National Science Foundation. This appears to be huge because they have [as many as 50 people working](#) on various parts of it. They seem to have two prototypes: Pearl and Florence. Its about 4 feet tall.

63. Tamim Asfour, a grad student at the University of Karlsruhe (Germany), is part of a major project which is building a humanoid called [ARMAR](#). Number of staff: unknown to me.



50 KB

64. The University of Massachusetts at Amherst has a humanoid project at the [Laboratory for Perceptual Robotics](#). Prof. Roderic Grupen is the director. They have [four professors on the project and about 20 students](#). They have built the upper half of a humanoid - similar to MIT & Vanderbilt. Their humanoid has about 29 DOF, including 2 functional arms (7 DOF each) and two 3 fingered hands (4 DOF each).



UMass humanoid.

66. The [ProtoAndroid project](#) (Austin, Texas) This project is financed by the [Faustex Systems Corporation](#), whose founder and president is David Santos. This project has been under development since at least 1992. It is 6' 4" tall and weighs about 300 pounds. Size of staff is about 5. They have also built the [H2 martial arts robot](#) shown below.



116K.

67. Thailand now has its first android project. [King Mongkut's University of Technology at Thonburi](#) is building an android too.



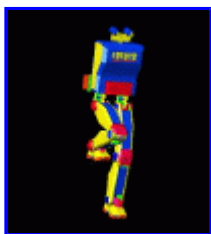
ARMAR - 124K

65. Vanderbilt University School of Engineering has a humanoid robot called [ISAC](#) under development. This project has four professors and 23 students. The project has been under way for about 5 years. Their current goal is to enable ISAC to learn from his own experiences and to interact with people in a natural way. Ultimately, ISAC will be an in-home care-giver for the elderly or infirm. The Director of the Center for Intelligent Systems is Prof. Kawamura. Their [staff](#) includes Profs. Peters, Wilkes, Biswas, and Gaines.



46KB image

68. Started in 1996, [Aandroyds Inc](#) offers a line of 2, 4, and 6 legged machines for sale. The machines are designed for home, office, and industry, with custom lab and space models



69. Dr. Jennifer Best at UCLA is leading a new [android development project](#) . Their [main web link](#) may not work because their server is down. You might try [this one](#) . With a major school like UCLA backing this project, I'm sure we can expect great things.

70. [Kumoh National University of Technology](#) in Seoul, Korea has a project which is building a miniature humanoid robot. It is being built by the mechatronics group which is part of the mechanical engineering department. They claim that their humanoid robot can walk up and down stairs. WOW! Here are a couple of papers I found.

[1] Y. W. Sung, and S. Y. Yi, "A miniature humanoid robot that can walk up and down stairs", Proc. of International Symposium on Robotics'2001, Seoul, Korea, 2001

[2] Y. W. Sung, and S. Y. Yi, "The Development of a Miniature Humanoid Robot System", Proc. of International Symposium on Robotics and Automation 2000, Monterrey, Mexico, pp.133~138, 2000

72. [Intelligent Earth, a company located in Kirkcaldy, Scotland](#), has announced a new project to build a full sized walking and talking android. The announcement appeared [at the end of this news article from the BBC](#).



Doki

available. Find them at [Aandroyds.com](#).

71. [Tsinghua University](#) in Beijing, China has a bipedal humanoid robot project called THBIP-I. This project is several years old. Here is [one news article](#) . Here are a few papers I found:

[1] "The Biped Humanoid Robot THBIP-I" Li Liu, Jinsong Wang, Ken Chen, Jiandong Zhao and Dongchao Yang (Tsinghua University, China)

[2] "Gait Planning of Humanoid Robot Based on Anticipant ZMP Tranck" Dongchao Yang, Li Liu, Jinsong Wang, Ken Chen (Tsinghua University, China)

[3] "A New Method of Gait Generation for A Biped Walking Robot" Kai Xu, Ken Chen, Jinsong Wang, Li Liu, Dongchao Yang, Jiandong Zhao
Institute of Manufacturing Engineering, Tsinghua University, China

73. The [University of Freiburg](#) in Freiburg, Germany [started a Learning Humanoid Robots project in January of 2004](#) . The project, called Nimbro, is being directed by Sven Behnke and will involve about 12 people. They will be building a humanoid which will be about 150 cm tall (5 feet) and will weigh about 38 Kg. It will have 22 DOF. They would like to compete in the Robocup Humanoid Soccer tournament.

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