Einstein Robot

Limited functionality out of box without web connectivity

The toy will give audible instructions once powered on. After an initial greeting is played. A short audio tutorial is given on how to use a smart device to set up and register the toy via the Wi-Fi and cloud service.

Smart Device is coupled to the toy to allow the consumer to do the normal set up and customization with the smart device screen and input method

All of user's information is input via a smart device such as a mobile phone, tablet, pc, etc.

These smart devices must have the ability to connect to the internet and an internet connection is available during the set up process.

The mobile device must have access to the same local router the toy will be attached to through its Wi-Fi connection in the home

Through a series of well scripted interaction sessions both verbal and smart device based or a combination of verbal response with smart device visual prompts

Scripted dialogs help the toy collect data from the user to help better interface with the user

Scripted dialogs help determine the consumers likes and needs, so the toy pre focuses information on those subjects

Toy has capacity for learning personal preferences such as sports the consumer is interested, gamming, food, holidays, etc.

Calendar of life events (birthdays, holidays celebrated, family members, pets) and daily events (exams, doctor appointments, dinners, reminders) can be created on line or imported from one of the popular calendar application tools

Feature functions

Entertain Brain Games

Games designed to help you improve you

Concentration

Thinking speed accuracy

Memory

Problem solving

Learn new skills

Learn how to program

Learn a basic programming language and teach Einstein and his friends new behaviors

Learn to think object oriented

Programming in kid friendly bubbles

Explore and learn about science

Ecology

The earth

> The Universe
>
> The Oceans
>
> Gravity

The human heart

Other Cool interesting facts

This day in history

How many people are in the world

How much food gets eaten every day

Why the oceans are tied to the earth's orbit

Why do we taste sweet, salty, bitter and spicy things

How do things work

Cars

Phones

Computers

Wireless mouse

Ovens conventional versus microwave

Chatting with Einstein (chat bot based, but with Einstein's type answers.

Dialog generalized chat for entertainment utilizing Einstein's real quotes from time to time

What to do today that's interesting, fun interesting things to do

Visit a museum (can be virtual through the tablet with Einstein being the guide)

Do a science experiment (Mentos and coke volcano)

Cook new food like pizza

Learn about plants, from seed to vegetable

Help me find

A basic natural language query tool to help you find the basic things that can be displayed on your smart device while Einstein speaks to the smart device video

Such as help me find where China is

How big is America

Where do penguins come from

Food

Where to get great pizza

How to get a machine to make ice cream

What's in cheese, how is it made, where can I buy it

Clothes

Where can I buy a kilt

Nike Shoes

A place

Where is Hawaii and how can I get there

Where is Shangri-La

Power Management

The Robot will come with an internal rechargeable battery.

The internal rechargeable battery will come with an initial charge of 60 percent power

This will allow for the toy to function immediately out of the box

The Robot will have a mini usb connector in the back to allow for software updating and power recharging

If possible the robot may have conductive coils placed in each foot.

Once the robot needs to be recharged it can walk up to a stand and locate itself in the prober position where the inclusive coils in the feet can receive and induced field from the platform the robot is standing on the recharge the battery

The size of the battery interims of milliamps per hour and physical battery weight and size TBD

Run time and battery cost TBD

WIFI usage, motor current draw and camera usage can all greatly effect battery consumption and life expectancy

Charging time can be better estimated once the battery is chosen based on targeted run time per session prior to charging

Web connected toy

Has integrated Wi-Fi Initial objectives below

Must be a total solution (IC + Core APP + Cloud) due to time to market if at all possible

Easy Wi-Fi setup & Easy Firmware upgrade a must

Easy push messages to smart devices Easy development SDK must be ready

Fast boot (RTOS, < 1sec)

Low power consumption (Battery)

Advance encryption (RSA/AES

High Speed Mode

High Performance: 150mW

CPU 80MHz

Full function allowing for data intensive applications and data transfer such as images, sound files, etc.

Low Power Mode

Lower Power consumption: 30mW

CPU 12MHz

I/O service remaining such as SAR-ADC, I2C, UART, SPI and GPIO
Still allowing for external communication and control of devices such as motors and sensors

Deep Power down mode for maximum power conservation

Real Time Clock consumes small amount of power around 10uA

Alarm, Wake-up function

Currently imbedded Wi-Fi modules are about 8 to 12 times more efficient between boot time, power consumption, set up time efficient then open source, lynx type.

Speaker

Speaker can be used for audio playback as well as high frequency tone emission.

Size TBD

Quality TBD

Max DB output TBD

DB adjustment

Speaker to be located inside plastic housing with the figure wearing soft clothes in the front of the speaker, so final level must take these points of DB reduction into account

Must be able to pass the age graded safety values for DB out as defined by the ASTM. Or EN71 if sold as a toy. In some cases this is retailer dictated by isle space. If sold direct as a computer connected peripheral, max DB level compliance rules do not apply without a child age grading.

Some retailers may require a maximum DB level to be factory preset for insurance regulations

Microphone

Sensitivity TBD

Dynamic range TBD

Noise cancellation TBD

Omni directional TBD

Estimated optimal operating range to be one to two meters

Solid State versus high quality condenser microphone analysis for cost benefit analysis

Low resolution camera

Camera resolution TBD

3 Meg Pixel or higher

Camera Lens TBD

Camera filter TBD

Core infrared filter to minimize high sunlight levels, ant glare coated.

Two infrared blasters

Capable of receiving infrared signals and decoding them

Capable of transmitting infrared signals

Capable of being used as a tracking device to help track an object with in its visual range of one to two meters

Capable of controlling other toys, of me /R AV equipment such as television and cable box.

Capable of receiving control codes from other toys or devices

These are low speed communication ports

Animated face with 5 motors

Capable of at least 8 to 10 facial emotions

Eyes turn left and right

Eye lids open and close

Face smile

Face frown

Face neutral

Eye brow raised

Head turn 15 degrees when eyes exceed 20 deg of extreme movement, left or right from center

Flexibility to extend tongue when mouth fully opened.

Walking capabilities

Left (20 degree increments per turn)

Right (20 degree increments per turn)

Forward straight

Backwards straight

Text to speech

Evaluation of cost and performance of the open source and fee based text to speech engines with the ability to support an Einstein type voice

Speech to text

Evaluation of cost and performance of the open source and fee based speech to text engines with the ability to support a wide variety of languages and dialect versions

Stored speech

Creation of stored speech with in the robot toy from prompts

User set up

Power management

365 days of facts

365 days of jokes

Cover speech during connectivity issues

Etc.

Einstein phoneme set

The purchase and or creation of a phoneme set to be used to closely resemble what we believe to be an endearing version of Einstein's voice.

This must be able to be ported to phrase engine for inflection and word substitution, so the speech sounds like it was from a warm and friendly Einstein

Personality processing module

Always make sure the robot speaks with warm friendly tone, easy to understand. At times upbeat and funny
With a small amount of making fun of himself, I am like everyone else, I still go to the toilet a few times a day

Idle loop procedures

Joke telling 365 pre-loaded
Scripted jokes in general humor about the earth, science, and math. Easy to understand and somewhat clever with a double meaning at times
Or, it's not being one of the smartest men on earth, I can never get a break, even my wife asks me to fix the phone.

Fun science facts 365 loaded

Fail and soft fail paths and operations

Consumer interaction building over time to reveal new features and abilities to connect the user on even an more emotional level

Second Screen connectivity

Natural language processing for command

Natural language processing for query