

■ About "FUMM"

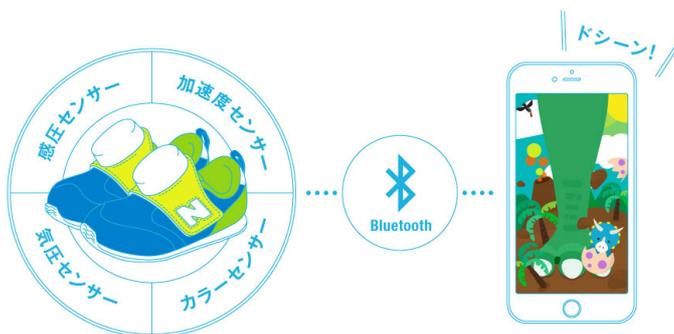


Hackathon members

Tsuno / Masakichi / chikaike / Yazoo /
Madoka

FUMM is a pair of shoes that mounts four types of sensors: "acceleration", "air pressure", "color" and "pressure sensitivity" to identify the child's movement (walking, jumping, climbing stairs, .etc) and the color of the ground. When that information is received by the parent's smartphone, the smartphone will make various sounds such as a cat's "meow" or locomotive "choo-choo", making FUMM a playful communication tool that enables parent-child play. FUMM also has a "child protection" function; the parent's smartphone will detect the presence of the Bluetooth radio waves and sounds an alert when the child is separated far away from the parent. Therefore, as well as being a fun way for parents and children to play, FUMM is also a wearable device that enables safety and relieves parents' worries.

< Image: Connection with the smartphone >



<Sensors equipped in FUMM>

(1) Pressure sensitivity sensor (mounted on both the insole toe and the insole heel)

Detects the center of gravity.

Can be used to determine whether the child's foot is on or off the ground, etc.

(2) Color sensor (mounted on the sole at the arch of the foot with LED light)

Detects the color of the ground.

(3) Acceleration sensor (mounted on the Velcro)

Detects movement of the feet on the X, Y, and Z-axis, while running, kicking, etc.

(4) Air pressure sensor (mounted on the Velcro)

Detects height up to approx. 20cm, while going up and down the stairs.

<Image: FUMM app user interface>



<FUMM concept movie>



"Making the ordinary walks an adventure"

<http://aufl.kddi.com/openlab/fumm/>

■How to use FUMM and future development examples

As well as being used to create various games, FUMM also has the potential as a new user interface in the future. In addition, children are able to create their own original games on the website by determining the rules of "actions (motion)" and "reactions (sound / animation)". In the future, FUMM for adults can also be offered, which can have a potential as a user interface.

< Usage Examples >

Exploration game



The color sensor will detect the colors of the ground and tells a clue. The acceleration sensor reacts by waving a foot and can figure out the code. It will be an exploration game for both the parents and the children to enjoy.

Everybody dance!



The acceleration sensor and the pressure sensitivity sensor respond at the same time when more than one person wearing FUMM dances. This enables to create new types of sounds by synchronizing the motions.

Learn colors in English



FUMM will look up the English name of the colors from its database and tells the child the color of the ground they have stepped on in English. The child can learn English by using their entire body.

<Development of original games>

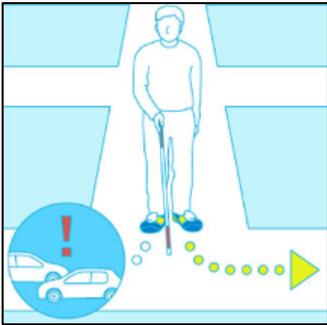
Play Motion Platform - Open platform to co-create "games"



To satisfy the children's unlimited creativity, the open platform enables children to create their own original games on the website by determining the rules. Of course, their fathers can also create rules to play specifically for their sons.

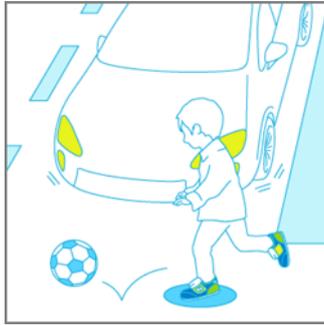
<Examples of future development>

Support for the visually impaired



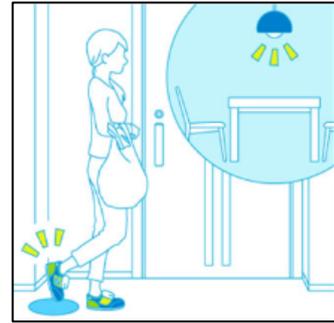
The various sensors will react to the ground pattern and make announcements to the wearer. If this sound support is added, it will significantly expand the function of the Braille tiles.

Equipment for traffic safety



By wearing FUMM which is in conjunction with GPS, it can let the drivers know the position and the speed of the wearer in real-time to prevent traffic accidents.

Possibilities as a new user interface



The pressure sensitivity sensor can detect the wearer's return home. FUMM can connect to the lighting system of the house and turn on the lights by tapping the toes.

■au Unlimited Future Laboratory

au Unlimited Future Laboratory is an open laboratory established as an organization ancillary to KDDI R&D Laboratories. au Unlimited Future Laboratory aims to create the "next smartphone" that adds new value to connectivity.

In FY 2014, au Unlimited Future Laboratory recruited customers as researchers and regularly held "hackathons" and "online discussions" with experts from various fields to develop "clothing", "food" and "housing" concepts. A total of 15 prototypes (5 "clothing", 5 "food" and 5 "housing") were developed. The culmination of this year was the selection of the FUMM concept from amongst these 15 prototypes. au Unlimited Future Laboratory will continue its various initiatives to provide new value in the future.

