



<http://www.camreader.jp/eng>



Motion Detection Engine

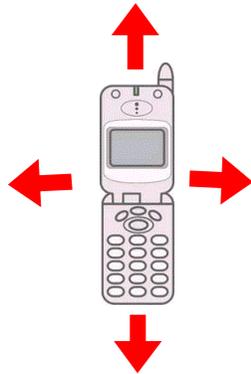
Overview



Motion Detection is a state-of-art technology that recognizes the direction and distance of a moving mobile handset from its camera screen images and convert those information into commands.

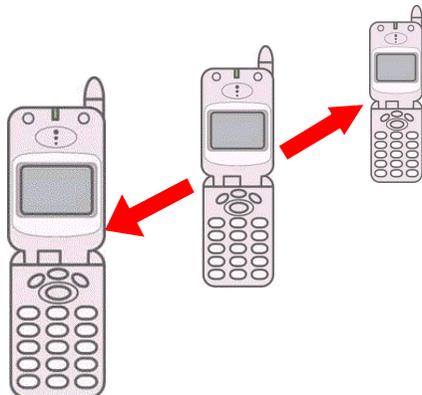
Vertical and horizontal

Planar movement to the camera face (including oblique directions)



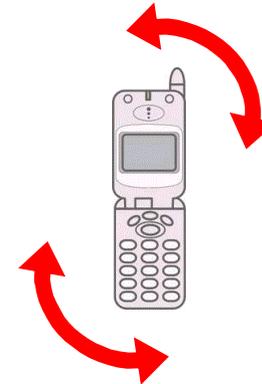
Backward and Forward

Backward and forward movement to the camera face



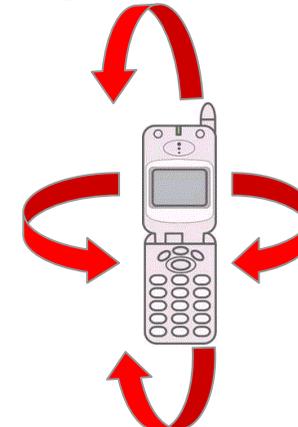
Horizontal rotation

Planar rotation to the camera face



Tilting rotation

Tilting rotation to the camera face



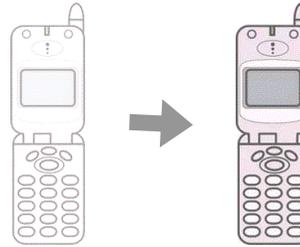
Motion Detection can be used as a game controller for mobile phone. You can enjoy the game with a dynamic feeling because Motion Detection directly reflects a movement of a camera equipped with mobile phone in the game.

Train a gun sight at the middle of the screen on a monster.

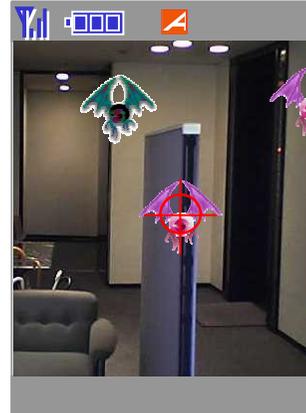
Shift the camera to train a gun sight on the monster.

Once taking aim at the target, then shoot and defeat it!!

Movement of a camera



Game screen (Movement of a mobile phone)



Specifications



Platform	Intel. ARM9, Qualcomm-MSM
OS	Windows Pocket PC, BREW, Symbian OS
ROM Size(Program)	10KB
RAM Size (heap)	50KB
Recognizable motion	<ul style="list-style-type: none">-Vertical and Horizontal movement to the camera face-Backward and forward movement to the camera face (Under development)-Horizontal rotation to the camera face (Under development)-Tilting rotation to the camera face. <p>*Please see exhibit for details.</p>
Recognition processing speed	15fps (Value on ARM7)
Conditions for recognition of input images	<ul style="list-style-type: none">*Two consecutive images should overlap each other.Overlapping part should be at least more than half of each image size.* There are no rotation more than 10 degree between 2 consecutive images.*There are no zoom-in or out more than 10 % between 2 consecutive images.*Recommended input images are 60 x 80 pixel and 8 bits of grey-level.*There should be a “boundary” in input images.*Input images should not be blurry.
Condition for photographing	Images should not be monochromatic or plain.

We won BREW® Developer Award!!

We won "Most Innovative Use of Technology Award" ,in which BREW® application using innovative and unique technology is given an award, for our development of "Buggy Boom with Motion Detection" leveraging the Motion Detection technology in "BREW® Developer Awards" at "BREW® 2005 conference" hosted by QUALCOMM Incorporated.



Reference:

http://www.mediaseek.co.jp/pdf/2005/2005_0607_01.pdf