game consoles, multiprocessor systems, microprocessor-based or programmable consumer electronics, network PCs, or the like.

[0040] Computing devices typically range widely in terms of capabilities and features. For example, a mobile phone may have a numeric keypad and a few lines of an LCD or OLED display on which a small amount of text and graphics may be displayed. In another example, a computing device may have a touch sensitive screen, a stylus, and a relatively large display in which both text and graphics may be displayed.

[0041] A computing device may include a browser application that is configured to send/receive and display web pages, web-based messages, or the like. The browser application may be configured to receive and display graphics, text, multimedia, or the like, employing virtually any web based language, including a wireless application protocol messages (WAP), or the like. In one embodiment, the browser application is enabled to employ Handheld Device Markup Language (HDML), Wireless Markup Language (WML), WMLScript, JavaScript, Standard Generalized Markup Language (SMGL), HyperText Markup Language (HTML), eXtensible Markup Language (XML), or the like, to display and send information.

[0042] Communication media used with computing devices typically may enable transmission of computer-readable instructions, data structures, program modules, or other types of content, virtually without limit. By way of example, communication media includes wired media such as twisted pair, coaxial cable, fiber optics, wave guides, and other wired media and wireless media such as acoustic, RF, infrared, and other wireless media.

[0043] The display of images and/or video data using the IPD is different from the display of the same images/video on more conventional displays. Conventional displays generally are arranged with some form of pixel addressing in the display area. The pixel address may be specified by timing, as in raster scanners like CRTs using horizontal and vertical blanking signals (H-sync and V-sync, respectively), or by row-column address pairs like transistor/LED (Light Emitting Diode) arrays in LCDs. In conventional displays, the area of the display is generally quantized as a fixed grid with equal sized tiles or spatial quanta, also referred to as pixels. In such display systems, the illusion of motion is created by quantizing continuous time into discrete and equal quanta, also referred to as frames. Generally, a fixed frame rate, expressed as Frames Per Second (FPS) is used to record and play back moving images. This quantization of time into frames, and image into pixels, introduce temporal and spatial artificial visual artifacts, respectively, during the display of moving images, such as jagged lines (spatial), aliasing (spatial and temporal), image blurring (temporal), judder (temporal), and the like, further described below.

[0044] These address-based pixel organizations are fundamentally different from the pseudo random scanning method used in IPD. The address-based displays generally require a defined frame format with specific and rigid timing requirements, as is well known to one skilled in the relevant arts. For example, in a raster scanner, scanned lines (scanlines) are displayed in consecutive order, as parallel horizontal lines, one after another from the top to the bottom of the screen. In contrast the MEMS scanner for the IPD can oscillate and project light in a pseudorandom pattern onto a remote surface, where the scanlines of image beam and tracer beam light pulses are primarily traced out in a direction based on the image to be projected, without relying upon a particular spatial or temporal relationship with the previous or the next scanline.

[0045] Conventional scan patterns, in terms of both timing and spatial regularity, digital sampling, and quantization in general create a number of visual artifacts, such as jagged slant or diagonal lines, especially visible in low-resolution displays, image blurring, motion blur (may occur because of a basic mismatch between continuous human vision and quantized digital display), judder (defined as small unnatural jerky movements in motion pictures, either in space or in time. In space, judder can be the result of consecutive film frames not advanced precisely to the same position at the projector gate. In time, judder in video may be noticed because 24 frames per second for film source does not divide evenly into 60 fields or frames per second for NTSC video, and some film frames' content is shown on the screen for more time than other frames' content), moirés (pattern resulting from two grids that are superimposed over one another), screen door effects, aliasing, and the like. These artifacts results, in one way or another, from quantization and digital sampling.

[0046] However, since the IPD is relatively analog in nature and in its operation as compared to conventional displays, does not depend on quantization, even though at some points through the process a IPD implementation can process digital data. For example, reading an image from memory to display may involve some digital processing, however, once the image is ready for projection using IPD, the process is largely analog, as more fully described herein.

[0047] Another difference between the IPD and conventional displays is tracking and feedback. Conventional displays are feed-forward in their basic operation, sending image data in one direction: from the source of the image, for example, memory or DVD, to the destination, which is the display device. Generally, no feedback is needed for basic operation and no data is read back from the conventional display. In some implementations of conventional display devices, the displayed image may be read back or sensed and compared with the source image to increase the quality of the displayed image. However, such feedback is for quality enhancement as opposed to being part of the basic operation of the conventional display devices. The display method used in IPD may use feedback from the tracer beam, for example, IR pulses, to determine the next screen position on the scanline trajectory by trajectory prediction and/or estimation. Once the next screen position is so predicted, the memory image for the corresponding screen position is obtained and used to modulate the component image beams for combining and projecting onto the next screen position.

[0048] Because the scanlines can be pseudorandom in the IPD, generally, the timing information (usually included in video frames) needed for display of a video stream on a conventional display device, may not be needed for display of the same video stream on the IPD. In one embodiment, the active video signal, the sequence of images to be displayed, that is sent to a conventional display screen, may be stripped, in real-time, from the formatting information associated with the conventional displays, such as H-sync and V-sync signals and/or other timing information, for display using IPD. In another embodiment, the active video or other image to be displayed using IPD may be generated for IPD or pre-stripped at the source of the video or image. In yet another embodiment, both of the above embodiments may be implemented