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MEDIA PRESENCE DETECTION USING LIGHT EMITTER AND SCANNER

HP INC

Media Presence Detection using Light Emitter and Scanner

This disclosure relates to the field of media presence detection in a sheet feed scanner.

A design is disclosed that a scan media presence detection is achieved by using a LED light, a light pipe which conveys light to scanner, and scanner which scans with scanner light off.

Usually sheet feed scanner media presence detection is using one of the methods shown in Fig.1.

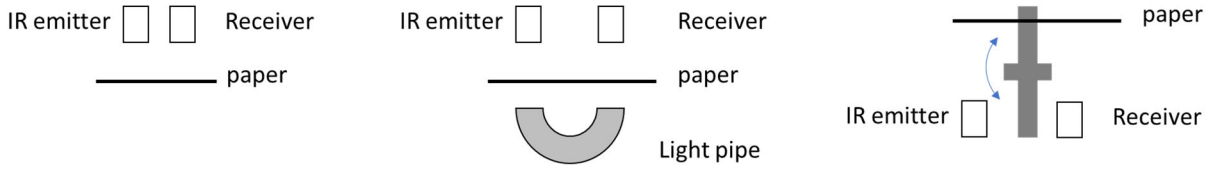

Fig.1 Current media presence detection methods

The first method may have issue when scan original is dark color, resulting in low reflection light back to receiver and causing no detection. The 2nd method is reliable as it is not affected by contents on the paper. The 3rd method is using a spring-loaded flag to block/pass light between emitter and receiver, which adds certain mechanical complexity compared to method 1 and 2.

The most reliable method among the 3 types, the 2nd method, can be further cost reduced: keep the light emitter, use scanner as the receiver, scanner periodically scans with scanner light off. When scanner sees high brightness, it means light path is not blocked; when scanner sees low brightness, paper is present. As shown in Fig.2, this concept can be applied on several applications:

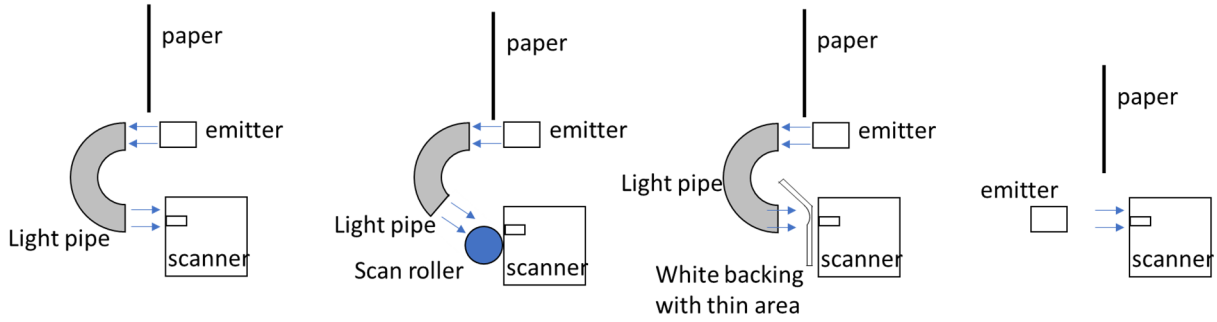

Fig.2 Scanner as receiver, for media presence detection

After scan original is detected, light emitter is turned off, scan job can be executed as usual. End of page is determined by scan algorithm to differentiate scan contents with background, for an example, by comparing brightness and chroma. After scan job is done, emitter is turned on, scanner periodically scans with scanner light off to detect presence of next scan original.

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