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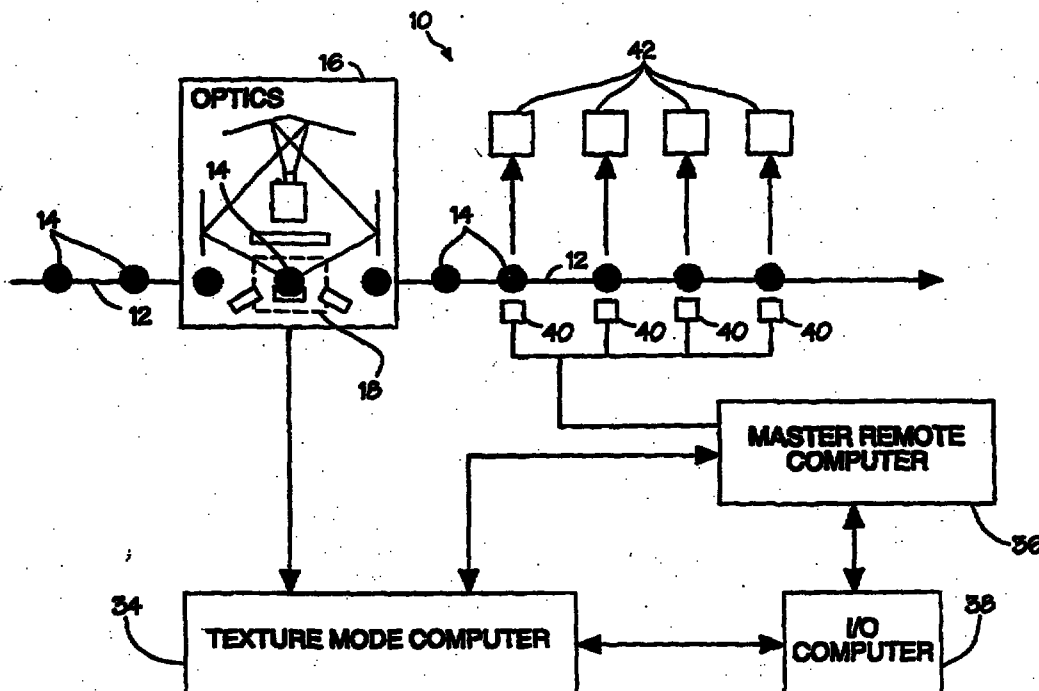
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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| (51) International Patent Classification <sup>6</sup> :<br>B07C 5/342, G01N 21/88                                                                                                             |  | A1                                                                                                                                                                                                                        | (11) International Publication Number:<br>WO 96/14169          |
|                                                                                                                                                                                               |  |                                                                                                                                                                                                                           | (43) International Publication Date:<br>17 May 1996 (17.05.96) |
| (21) International Application Number:<br>PCT/US95/11318                                                                                                                                      |  | (81) Designated States: AT, AU, BR, CA, CH, CN, CZ, DE, DK, ES, FI, GB, HU, JP, KR, LU, MX, NO, NZ, PL, PT, RU, SE, SG, SK, UA, US, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). |                                                                |
| (22) International Filing Date:<br>6 September 1995 (09.09.95)                                                                                                                                |  |                                                                                                                                                                                                                           |                                                                |
| (30) Priority Data:<br>08/334,165 / 3 November 1994 (03.11.94) US                                                                                                                             |  | Published<br>With international search report.                                                                                                                                                                            |                                                                |
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89 9611134-9

## (54) Title: METHOD AND APPARATUS FOR DETECTING SURFACE FEATURES OF TRANSLUCENT OBJECTS

## (57) Abstract

The topographic surface features of a translucent object, such as a citrus fruit with a peel, are scanned and evaluated to permit the classification thereof according to its surface features. In the case of citrus fruit, the coarseness or pebbliness, puff and crease, ridge and valley, cuts, punctures, scrapes and splits, clear rot or sour rot of the peel is optically identified through digital analysis of the pixel scans and sorted based upon the peel surface quality. The object is classified by separating the scanned image of the fruit from the background image and removing the background image. A statistical evaluation of the image of the object as a whole, including both hemispheres of the object, is made to determine if there is any surface feature variation which might qualify as a defect or be a suitable basis upon which a classification judgement can be made. If there is, the object image is subject to high frequency or low pass filtering and thresholding of the pixel intensities to derive a refined image. The refined image is then tabulated or organized into neighborhoods contiguous to sharp transitions or gradual transitions to identify specific areas defined as blobs which, when compared against a given minimum area, shape requirement and/or width can be identified as one of the surface imperfections sought.



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