СЕКЦІЯ 26. ВОЄННІ НАУКИ, НАЦІОНАЛЬНА БЕЗПЕКА, БЕЗПЕКА ДЕРЖАВНОГО КОРДОНУ
(видається окремою збіркою)

СЕКЦІЯ 27. СУЧАСНІ ПРОБЛЕМИ ЦИФРОВОЇ ТРАНСФОРМАЦІЇ ІНТЕЛЕКТУАЛЬНОЇ ВЛАСНОСТІ

FIRST LEVEL OF REJECTION OF UNRIPE APPLES IN THE FOOD INDUSTRY

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Industry is one of the key areas of human life. And in the 21st century - in the age of information technology - it is clear that this area has not been overlooked by the latest innovations. Earlier, when people started to actively use apples, one of the most popular fruits among consumers around the world and all ages, for food - unripe fruits were rejected by hand. Firstly, it was slow enough, because a person manually selected unripe or rotten apples. Secondly, people are quite cheap labor to compare with automatic technology. Therefore, quality technology for rejection of unripe fruits and yet with sufficient speed is one of the key tasks of the industry in this field.

The first level of rejection of unripe apples from the conveyor by color is considered in the work and the ways of realization of SHC (* here and further - software and hardware complex) for the given task are analyzed. Statistical processing of SHC testing results yielded an error of 10%.

During the work there were many problems. The first and most important of these is that the human eye and the computer perceive colors quite differently, so the color of the apple and the corresponding color on the screen are different colors and their transmission is one of the complicated processes. Possible color spaces were analyzed for solution and the standard RGB was replaced with LAB. Another equally difficult problem is the boundary between the colors of apples - between green, yellow, red and their combinations. If we consider the visible spectrum of radiation seen by the human eye, we can say that there are no clear distinctions between colors. So in solving this problem we were helped by the color space LAB. Also, during the development of PAK, it was difficult to solve the problem of processing the colors of only apples, not taking into account the shadows and backgrounds - "extra" colors. The solution is quite simple - choose a white background for the conveyor belt and do not consider white when processing.

Thus, thanks to our PAK - industry can improve the rejection rate of unripe apples and replace the human workforce with a fully automated one.