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(57) Abstract :  
The present disclosure introduces a portable detection device for nail health and nutritional deficiencies 100, designed to provide real-time analysis of nail related health conditions. It incorporates power supply 102 to ensure seamless operation and a microcontroller 104 to coordinate data processing from various sensors. The device features optical sensors 106 for capturing nail surface images, pressure sensors 108 to measure thickness, and conductivity sensors 110 to assess electrical properties. Chemical sensors 112 and biosensors 114 detect biochemical and biological markers. Machine learning algorithms 116 process collected data, while a display screen 118 guides users and presents real-time results. The control buttons 120 allow user interaction, and a wireless communication module 122 synchronizes data with external devices. Memory storage 124 archives diagnostic data, while software algorithms and health guidelines database 126 provide personalized recommendations. Maintenance alerts system 128 and user manual 130 ensure reliability and ease of use. Reference Fig 1