

We have developed a 3D imaging flaw detection system using commercially available ultrasonic sensors and equipments. The scanning was carried out using an ISEL step motors and the path is in 2D in the first version of the equipment with resolution 1mm. The resolution of that system was better than 3mm SDH but lately it was improved using focused head down to 1mm SDH. In the next generation we used better resolution in movement down to steps of 0.1 mm and we can distinguish surface notches less than 0.1mm. The most important part of the 3D system is the 3D picture produced by computer code in LABVIEW allowing rotating of the final picture of flaws and producing real tomographic view of flaw in the metal. Comparing our system with commercially available similar systems it is surprisingly cheap and reliable. The system was tested first on specially developed etalons, containing holes and notches. Then it was used to find holes and lunkers in molded electronic parts in automotive industry, where we can present different layers of electronics. Finally we are heading to develop an application of that device on spot welds slicing the nugget with better than 0.2mm layers.