

ABSTRACT

Along with developments in sports, sports accidents always increasingly diverse, especially in cases of craniofacial fractures (nasal bone). Based on one of study mentioned that from many types of injuries in sports, especially baseball and softball, the cases of craniofacial fracture injuries often occur up to 44.30%, then based on the other studies also mentioned, that there are three patterns of maxillary fracture that often occur the abnormality that cause of bump, According to other sources also said that the size of the face mask that is not fit, can cause the continuous injury because it limits the edge vision during sports activities. Therefore, it appears the need for protective equipment in the form of Sports Face Mask (SFM). To find the need for SFM products in terms of design, allowing a fit size can affect to more responsive facets of vision without causing excessive pressure between SFM and facial skin. In addition, in terms of product manufacturing process requires a fast manufacturing process alternative based on processing time and use of the most minimum material. From the problems, then it will be made a high-level customization product such as SFM using Additive Manufacturing (AM) technology, to get the result of analysis that has been done with modeling on the use of SFM products between two individuals and stated that the product is only suitable for one individual due to differences in each facial contours between individuals, and then in the custom product design likes SFM, with using a 3D printer machine can be done with only 8 steps of process, compared to non additive manufacturing process up to 26 steps. then in the fastest process time perspective and minimum length (meter) and weight (gram) of materials used in the manufacturing process is 7 hours 15 minutes, and require a filial length of 39.51 meters with a material weight of 118 grams.

Keywords: *Application, 3D Surface Tracking, Mask of face protection, 3D Scanning, Additive Manufacturing*