Abstract
Smile analysis and smile design is one of the important aspects in orthodontics. Canted plane is one of the major causes of unaesthetic smile and it creates a total challenge to orthodontist. Occlusal cant is frequently related to facial asymmetries due to hereditary, developmental anomalies, environmental trauma, jaw cyst etc. Evaluation of occlusal cant is highly challenging, and its accuracy is always questionable. Conventionally, ala tragal line is used as a guide for assessment of occlusal plane and a fox plane is used to check the parallelism within the arch. Previous methods used such as microfocus X-Ray Computed Tomography, 3 Dimensional stereophotogrammetric imaging are expensive and time consuming. So, our aim of the study is to develop a simple, cost-effective device to check the horizontal and antero-posterior cant in occlusal plane accurately on dental chair. This study utilizes a fox plane, android phone and an android application which is taken from play store called clinometer (plaincode™). This application uses gyroscope and accelerometer sensor to help us measure inclines and declines in three dimensions. This simple, cost effective and easily accessible device will help in determining the cant and steepness in occlusal plane accurately.

Keywords: Cant, Diagnosis of occlusal cant, Occlusal plane.

Introduction
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to orthodontist. Occlusal cant is frequently related to facial asymmetries due to hereditary, developmental anomalies, environmental trauma, jaw cyst etc\(^1\). Evaluation of occlusal cant is highly challenging, and its accuracy is always questionable. Conventionally, ala tragal line is used as a guide for assessment of occlusal plane and a fox plane is used to check the parallelism within the arch\(^2\). Previous methods used such as microfocus X-Ray CT, 3D stereophotogrammetric imaging\(^3,^4\) are expensive and time consuming. So, our aim of the study is to develop a simple, cost-effective device to check the horizontal and antero-posterior cant in the occlusal plane accurately on dental chair.

**Technique**

This study utilizes a fox plane, android phone and an android application which is taken from play store called clinometer (plaincodeTM). This application uses gyroscope and accelerometer sensor to help us measure inclines (positive slopes) and declines (negative slopes) using three different units of measure: degrees, percent and topo. Fox plane (Dr Frank Fox) consists of an intra oral part and two extraoral arms which helps to check the parallelism between occlusal rims.

**Methodology**

Patient is asked to sit upright on a dental chair and made sure that F-H plane is parallel to the floor. To ensure natural head position ask the patient to look forward and gaze into his reflection of eye in the mirror. Fox plane is inserted into the patient’s mouth and asked to bite forcefully (Fig:1). An android phone with clinometer app is placed on the extra oral arm in a horizontal manner, which will accurately tell the cant in the occlusal plane three dimensionally (Fig:2).

**Conclusion**

To obtain a satisfactory result of orthodontic treatment it is important to identify and rectify cant in occlusal plane. So, this simple, cost effective and easily accessible device will help in determining the cant and steepness in occlusal plane accurately.

**References**


