

## **ABSTRACT**

*Visually impaired is a term for someone who has lost or reduced the function of vision. People with visual disabilities often experience difficulties in daily activities, for example when walking or navigating. They need the help of others to help them go to a room or move from one place to another. Currently, existing navigation aids do not fully meet the needs of the blind. They still need the help of others to get detailed information about visual objects such as the layout of rooms in buildings, traffic signs, and vehicles. Based on these problems, an Android-based navigation application needed that utilizes Text-to-Speech (TTS) technology to help blind people navigate independently by utilizing navigation information provided by voice. In order to help the development process, applications are developed by adopting Agile Software Development principles using the Test Driven Development (TDD) method. The features developed begin with a test fail phase where the developer creates unit test code before the production code is implemented, then refactor the code, and tests afterward (test passes). The success status of the features being tested gets success status with a rate of 100% for all features. Then in the TTS test, testing was carried out with 2 TTS engines, namely Google TTS and Samsung TTS, the results showed that the Word Error Rate (WRE) of Google TTS was 2,86, lower than Samsung TTS which got 4,06.*

*Keyword: Visually Impaired, Navigation, Text-to-Speech, Android Application Development, Unit Test, Test Driven Development*