

# **Helmet Detection Android App**

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**Abstract:** *The Helmet Detection App is an intelligent Android application developed using Android Studio with Java and XML, aimed at enhancing road safety compliance through real-time helmet detection. Leveraging the power of TensorFlow Lite, the app utilizes an AI-based model to accurately detect whether a person is wearing a helmet via the mobile device's camera. The detection system is integrated with a simulated traffic signal mechanism. When the model confirms that a helmet is being worn, the traffic signal turns green, allowing the rider to proceed. However, if the system detects that no helmet is present, the traffic signal turns red and enforces a 20-second delay, encouraging the user to wear a helmet. The application also incorporates Firebase Realtime Database to log detection events, track compliance, and enable future scalability for analytics or reporting purposes. This innovative app demonstrates the practical integration of machine learning with mobile and IoT systems to promote safety and discipline on roads...*

**Keywords:** Helmet Detection, Android App, TensorFlow Lite, Java, XML, Firebase Realtime Database, Road Safety, Real-time Detection, Smart Traffic Signal, AI-based Enforcement

