

# PROJECT PROPOSAL

## Department of Information Technology

### **Project Idea 3**

**Title:** Android Malware Detection Using Machine Learning.

#### **Brief Description:**

Android platform has been targeted by cyber-criminals due to the increase in number of Android users. More Android malware were identified everyday making it is difficult for the malware analyst to detect them. The main reason is the user ignorance in the process of installing and usage of the apps. Android malware can be detected based on the permissions it requests from the user. Several machine learning algorithms are being used in the detection of android malware based on the list of permissions enabled for each app. Here we have use a different approach to detect Android malware. The Android malware will be visualised into gray scale images and then information will be extracted using descriptor. The detection and analysis will be done and compare using different classifiers. These APK files will be unpacked to extract the classes.dex file which it is the binary file contains the opcode. This opcode can be run on Android platform. This file will be converted to 8-bit grayscale of image to visualise the file structure. The grayscale images created will be divided into two groups that will be used for training and testing for classification using machine learning. GIST descriptor will be used to extract features from these images. The classification will be done using three different machine learning descriptor namely, k-nearest neighbor , Random Forest and Decision Tree . The accuracy of the classification will be calculated and compared using confusion matrix.

#### **Technology Integration:**

APK files -- malware and benign samples  
machine learning descriptor -- k-nearest neighbor , Random Forest and Decision Tree  
Programming Language – Python Language

#### **Scope of The Project:**

Android devices are open to a number of different threats, most of which come from downloaded apps. During installation, each app requests specific permissions, such as the ability to access the contacts list or to open websites. The Android operating system tells the user what systems and data an app will access, but the OS won't block any app activity after installation. Therefore, Android malware protection is so important and that can be done with this project.

#### **Literature Base Paper:**

- [1] Android mobile security by detecting and classification of malware based on permissions using machine learning algorithms  
P Ravi Kiran Varma ; Kotari Prudvi Raj ; K. V. Subba Raju  
10-11 Feb. 2017
- [2] An Android Behavior-Based Malware Detection Method using Machine Learning  
Wei-Ling Chang ; Hung-Min Sun ; Wei Wu  
5-8 Aug. 2016

[3] An Android Behavior-Based Malware Detection Method using Machine Learning  
Fauzi Mohd Darus ; Salleh Noor Azurati Ahmad ; Aswami Fadillah Mohd Ariffin  
13-15 Nov. 2018

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