# Proposed Subject Matter/Capstone System: Improving Teachers’ Workflow and Task Management through a Digital Task Organizer and Extensible Toolkit

## Description:

The study shall aim to develop a task organizer and extensible toolkit system focused on the needs of teachers, school heads, and other personnel in the academic sector. The project system shall be designed to improve the workflow of the target users. Each type of users have specific needs, so the system shall also be extensible through subsystem plugins that can provide optional functionalities. It should also be able to interface with other existing management and support systems through plugins whenever necessary. In addition, the system shall be cross-platform and capable of device synchronization for maximum utility.

## Functions:

* The Base System
  + The base system shall be cross-platform.
  + The user interface (UI) shall sport a similar look and feel across all platforms (i.e., operating systems) for a unified experience, but should also maximize the utility of or at least take into consideration any platform-specific elements and characteristics of target platforms.
  + The UI should also be customizable through the use of special UI plugins.
* The Plugin System
  + The base system shall be a platform that will host plugins. Almost all system functions shall be provided by plugins.
  + Mandatory plugins shall provide the base functionalities of the system, so these shall be installed along with the base system. These shall include a task organizer plugin, and a plugin manager. Other mandatory plugins may also be designed depending on the results of the study.
  + Plugins shall be written according to each target user’s workflow requirements or any other special function.
  + Plugins shall only be downloaded and installed on demand to save space.
  + A plugin development kit should also be made available to complement the system and assist independent software developers in creating their own custom plugins.
* The Task Organizer Subsystem
  + The task organizer plugin shall be similar to other task organizer systems that allows the user to add tasks to a task list.
  + Each task shall have schedules, deadlines, status, and multiple alarms.
  + (Notifications)
  + The user should be able to reorder the task list according to task properties such as deadline and alarm.
  + Tasks shall be stored using a flexible data format to be determined after research.
  + Other design requirements shall be defined after data regarding the workflow of teachers are gathered.
* Proposed Optional Plugins – This is only a tentative list as the plugins and the plugin features themselves could change after more data has been gathered.
  + Class Record Subsystem – This plugin shall allow the storage of student records and grades by providing a database functionality. Raw scores can be input and weighted grades can be computed.
  + Class Manager Subsystem – This plugin shall assist teachers in planning routine activities and managing specific tasks and workflows. Using this subsystem, teachers can construct lists for specific purposes. Data from the Class Record Plugin may also be used for these lists.
  + Lesson Manager Subsystem – This plugin shall assist teachers in creating and maintaining lesson plans. It shall be able to link to the Class Manager Plugin to plan classroom activities whenever necessary. This subsystem should be easy enough to use even in mobile devices but should be more flexible when used on a desktop/laptop system. It shall be viewable in day, week, or unit modes.
  + School Administrator Subsystem – This plugin shall extend the Task Organizer Subsystem with administrative features, such as pushing tasks to other devices, maintaining a list of subordinates, or viewing a teacher’s class record for inspection. This subsystem shall be suitable for supervisors, school heads, and department heads.
  + Connector Subsystem – This plugin shall allow user connections to further facilitate workflow.
* User Accounts
  + A user account shall be used to identify a device. All user information such as personal, school, or bureau information shall be added to this account.
  + Device linking shall enable the use of a user account on multiple devices. To link devices, a registered device and an unregistered device shall use a randomly-generated PIN for linking.
  + A web service may also be designed, if it fits the design requirements or is requested as a feature, to allow for online user accounts, which can further facilitate device linking and user connections (e.g., administrator-to-teacher connections, teacher-to-teacher connections, etc.).
  + Data sharing should also be provided not just for the same user account but for user connections, as well.

# Proposed Subject Matter/Capstone System: Extending Android Smartphone Utility through a Multifunctional Digital Assistant and App Launcher with built-in Filipino and English Voice Recognition

## Description:

The study shall aim to develop a digital assistant that can be told to do many things. It shall feature, among other things, an app launcher and a voice recognition capability that can receive and interpret both Filipino and English commands even when offline.

## Functions:

* The User Interface
  + The system shall sport a stunning but non-resource intensive animation as the main UI. The animation should be responsive to any received audio, interpreted voice command, or device/touch motion.
  + The system’s interface shall focus on being an app launcher. As such, button elements pointing to app drawers, widget screens, and other app launcher elements shall be included.
* The Voice Recognition Capability
  + The system shall be able to recognize both English and Filipino words.
  + This capability shall be available offline, but it should have augmented features when the device is online.
  + The system shall have a database of preset keywords for accomplishing a set of specific tasks.
  + The system shall be capable of adjusting to different accents, particularly the regional Filipino accents, and should even be capable of learning new keywords.
* The Lock Screen
  + The Lock Screen shall be an optional feature for supported devices that can allow the system to manage screen locks and some device power management features.
* Chat-Bot Functionality
  + The system shall attempt to achieve a chat-bot functionality similar to or even surpassing the Elisa program.
  + The system should be able to ask simple questions based on its accumulated vocabulary.
  + Chatting with the system should allow it to learn functionally (e.g., in terms of doing things, etc.) or, at least, verbally (e.g., in terms of learning new keywords or vocabulary).
* Extensibility
  + Some features may be designed as optional in order to conserve space. These should be available as add-ons or plugin packages to extend the functionality of the system on demand.

# Proposed Subject Matter/Capstone System: Enhancement of Filipino Vocabulary through A Word Puzzle Adventure Game

## Description:

The study shall aim to create a word puzzle and adventure game that features Filipino vocabulary. The main mechanics of the game is attacking opponents by spelling Filipino words from a given set of letters. Each word could belong to one or more categories, which can give additional points depending on the level, round, or mode of gameplay.

## Functions:

* Game Mechanics
  + Main gameplay
* User Interface