Proposal of Software Project
Project Title: "Updraft"

Project Supervisor: Dr. Alexander Wilkie (wilkie@cgg.mff.cuni.cz)

Project goal: To create an open-source alternative to existing commercial software for glider pilots.

Team members: 5-6

Project deadline: June 2012

Motivation

> *"Gliding is a recreational activity and competitive air sport in which pilots fly unpowered aircraft known as gliders or sailplanes using naturally occurring currents of rising air in the atmosphere to remain airborne." - Wikipedia*

Glider pilots use various software for planning and analysis of flights. Currently there are several free and commercial solutions on the market. However, the free software does not match the qualities of commercial applications and the commercial applications are expensive and their development has often stalled.

Glider pilots form a community of enthusiastic aviators. Flying is not about money for them – it is a hobby and in many cases also a lifestyle. For this reason project like this one would be welcomed and (if it is successful) also wide spread and frequently used.

Our goal is to create an open-source application that would make the flight planning and analysis easy.

Application Description

The application will provide flight planning functions and will be capable of visualizing recorded flights.

There will be some module/plug-in management which will make the application extendable for future purposes, because its development will probably continue after school project will have ended. (possible extensions are e.g. weather forecasting module or communication with flight recorder device)

Environment

Our target platform is PC with MS Windows or Mac OS X. Connection to the Internet will not be required to use the application, but some features may be unavailable in that case.

Localization

Application will be distributed with Czech and English localizations.

Negative Specification

The software is not intended to be used by competition directors or referees or for judging the achievements of any official goals.

Application will not be focused on detailed flight planning like calculating optimal speed, water ballast, final glide etc.

The application will not run on mobile devices and will not serve as an on-board computer.

Features

Terrain and Map Visualization

- Central point of the application is 2D / 3D map view.
- Additional data relevant to glider flying can be shown on the map, for example airspace divisions, turn-points or airfields.

Flight Planning

- The application allows the user to plan a flight in advance by selecting from a set of turn-points, which are pre-declared or specified by the user.
- Flight plans can be saved to a file or loaded from it.

Flight Visualization

- Flight paths from on-board GPS flight recorder can be visualized over the map using different color schemes to illustrate ground speed, vertical speed, etc.
- Various flight statistics will be displayed in a plot.