short & long term projects

# AT software

The current laboratory software, written using C++, consists currently of five main applications:

* ArrayBot
* ArrayCam
* ATDB
* VolumeCreator
* ArduinoController.

These applications are all built on top of the ArrayTomography API, ATAPI, consisting of a growing number of smaller specialized API’s for control of Camera, Motors, barcode reader, barcode printer, joystick, sound, serial ports, UC7, Arduinos etc, as well as software for creating automated motion control of the ArrayBot motors.

## ArrayBot

* Zoom and Focus control of the Navitar hardware (1-2 weeks)
  + Integrate Navitar API.
* Battery Indicator
  + Requires wrapping of an Open Source C# library (1 week)
* Move Unit and XY control out of main UI, and joystick, as it is not used often (1 day)
* Process Sequencer work, make easier to use. (ongoing)

## Arraycam

* Add sound feedback for various logistics (2-3 days)
* Implement control of the return speed for the cutting arm (1-2 days)
* Work on knife and zero stroke logic (1-2 days)
* Add ability to look up historical videos and images (3-4 days)
* Add status bar showing connection status to ATDB, ARRAYBOT, ARDUINOCONTROLLER, Zebra barcode Scanner and the UC7 (1-2 days)

## Volume Creator

* Add display of volumetric data (?)
* Add a simple plugin framework, allowing plugins to be written in any language, C, C++ and Python for example (1 week).

## ATDB

* Add display of historical environmental data (3-4 days)
* Add display of images and movies (1-2 days)
* Add software that compresses videos from the microtome (1-2 days)
* Add reader of barcode labels and associated UI’s (1-2 days)

## Arduino controller

* Currently the Arduino controller only purpose is to log environmental data from the Arduino board into the MySQL DB. This can however be done directly from the Arduino, and then the whole Arduino controller app can be eliminated (1-2 days).

## arraytomography API (ATAPI)

* Implement CMake, so ‘anyone’ can build the API’s (3-4 days)