

## **Team Cerebral - Lessons Learned**

### **Cycle 2 - 3/1/18**

The most important lesson we learned was a difference between how Pascal and C++ handle integer division. In Pascal, an integer divided by an integer results in a “real”, or a double in C++ terms. In C++, an integer divided by an integer results in a truncated integer. This was a problem as, by trying to port the original ATR2 to C++ by following the original code as strictly as possible, we did not realize C++ was truncating our results for scans, leading to scans to sometimes be accurate, and sometimes not at all accurate, if the radians returned had a significant amount that was being truncated.

We also learned how Qt’s main event loop works, and how to work around restrictions with working with graphics by splitting our ATR2 into two threads: one for graphics, and one for the backend ATR2 to “drive” the graphics. This allowed us to have live updating graphics.