

One of the major design constraints of programming sensor nodes is the limited memory of the motes, which is on the order of kilobytes. In order to make programming these motes easier, it would be ideal to use a language that optimized memory space. Currently these motes are programmed in nesC, which does not do the best job of space optimization. A new object oriented programming language Virgil, does a better job of optimizing the space needed for a program and in addition has support for strong type systems. Currently there is only Virgil library support for the LEDs and timer of the sensor nodes.

Over the next two quarters I plan on accomplishing several tasks to aid in support of the Virgil programming language. First, test whether the current work done on the LEDs and timer work on the actual sensor nodes. Currently they have only been tested on the AVRORA simulator. (a simulator for AVR machine instructions) After the initial testing I plan on implementing library support for the other three peripherals. The plan is to first implement support for the serial port, then the sensor and finally the radio. From this project I hope to learn a significant amount of information on both sensor networks and programming practices under significant memory constraints.