Progress Report 2

Progress summary:

We are trying to establish communication with Nordic when the two Nordics are on different boards. At the same time we were also trying to make the tank work using pulse wave modulation (PWM).We have initialized timer 2 and timer 4 for this purpose. Timer 2 will be used to run the right motor and the timer 4 will be used for controlling the left motor. We had to study through various sources to realize what PWM is and how PWM can be used to operate motors. We have now reached a point where we know what and how we are supposed to do so that PWM gets our motor functioning.

Weekly goal:

We wanted the Nordic to be functioning and we also wanted our motors configured by this week. The Nordic should have been able to send data from one STM board to the other STM board.

The next part that we wanted was the motors working using pulse wave modulation. The power to the motor would be given using timer register. This power can then be varied so that we could control the speed of the car.

Milestone 2 challenges:

This week was really a tough week. We had to spend lot of time to understand the basic concept of pulse wave modulation and realize how it can be used to drive the motors.

The other difficulty that we are facing is there is some issues with the initialization of the timer register that we want for the motors. We also faced a lot of difficulty in realizing how the timer registers had to be initialized at the first place. Also, another issue we faced in this regards was since most of the common pins that we use for timers are already used we had to spend a lot of time through the datasheet to find available pins that we could use for timer.

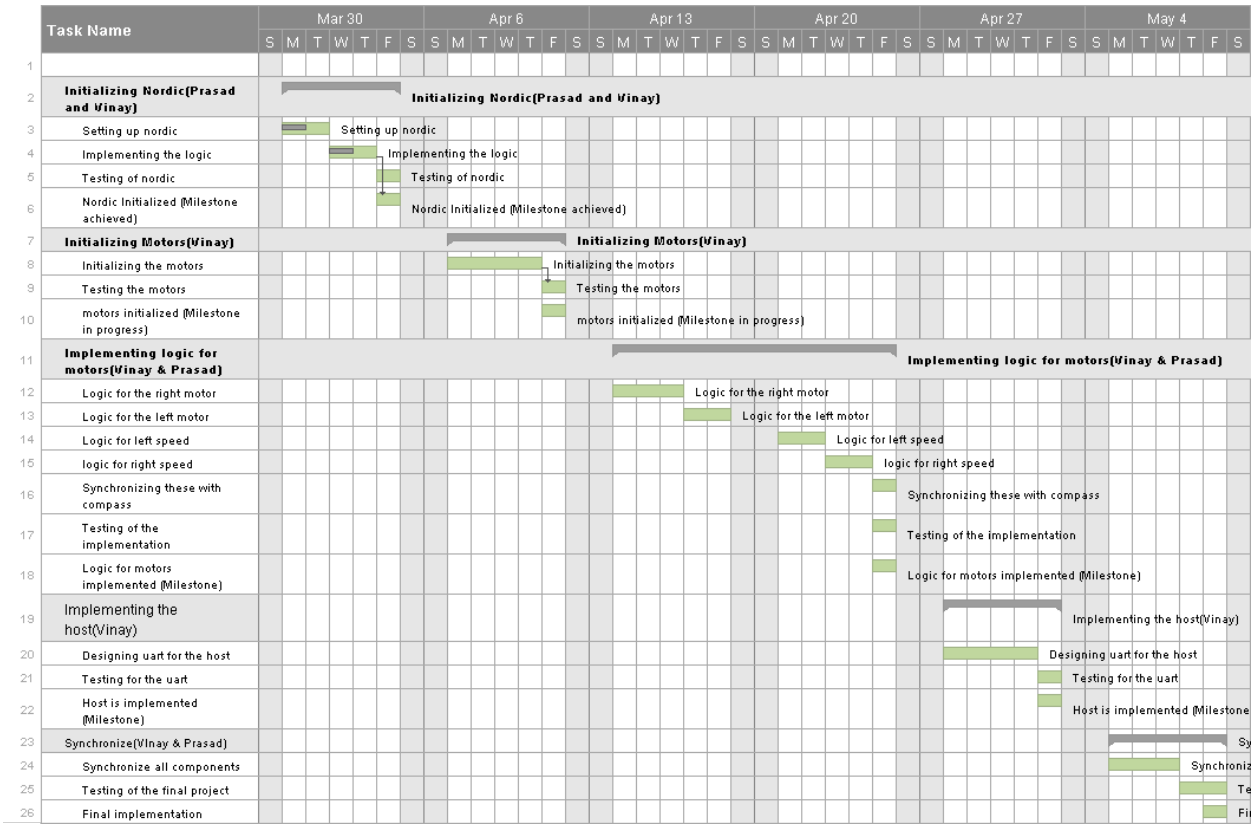
The next part was getting Nordic to communicate when they are on different boards. We thought this would be a rather simple task as we already had Nordic configured on same board but this task too turned out quite difficult. We realized that no data is sent from one Nordic to the other as soon as it was placed on other board. We have tried making one receiver and one transmitter so that we could realize what was going on but that too didn't work in our favor. In short this was a tough week full of difficulties for us.

Next week's goal:

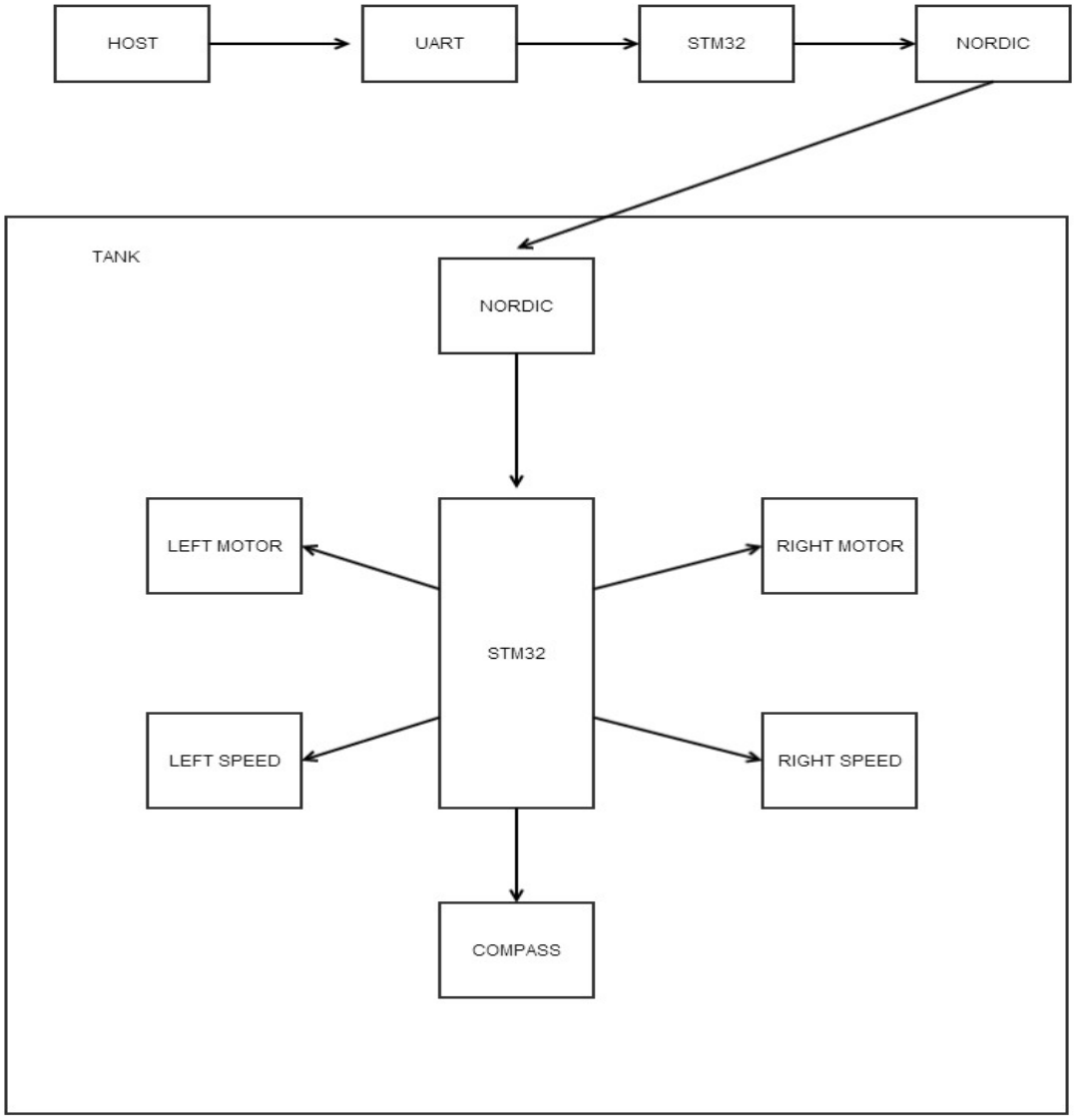
Our next major goal is to get the pending work completed. As soon as this is done with this task we would like to program the motors so that the tank could do the specified task .In this process we also want the tank to stop when the desired turn is made.

Updated Milestones:

As we have completed the first milestone, these are the updated milestones:


Task Name
Mar 30
Apr 6
Apr 13
Apr 20
Apr 27
May 4
S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S
1
2 Initializing Nordic(Prasad and Vinay)
3 Setting up nordic
4 Implementing the logic
5 Testing of nordic
6 Nordic Initialized (Milestone achieved)
7 Initializing Motors(Vinay)
8 Initializing the motors
9 Testing the motors
10 motors initialized (Milestone in progress)
11 Implementing logic for motors(Vinay & Prasad)
12 Logic for the right motor
13 Logic for the left motor
14 Logic for left speed
15 logic for right speed
16 Synchronizing these with compass
17 Testing of the implementation
18 Logic for motors implemented (Milestone)
19 Implementing the host(Vinay)
20 Designing uart for the host
21 Testing for the uart
22 Host is implemented (Milestone
23 Synchronize(Vinay & Prasad)
24 Synchronize all components
25 Testing of the final project
26 Final implementation

Block diagram:



Technical Profile:

Category	Design Objective	Deliverable	Status
Power	Battery life	Based on the usage	
Power	Battery availability	Uses commercially available AA batteries or any other batteries	
Communication	Wireless Link	The wireless modules should communicate with each other	Completed
Communication	Tank movement	Device and the host should reliably communicate	In progress
User Interface	Command line access	An interface that will help user to communicate with the device	
User interface	Device updates and information	Relays the status to the user	
Mechanical	Environmental	Device should be run under suitable condition	