**Proposed 2nd weekly meeting to learn programming for the Bitty Bot Rover and prepare for a monthly robot competition.**

1. Ray will host meetings at one of his locations - called the club-house. Probably at Rabbit Laser on Verity Parkway. Meetings will can be held on the week end Saturday or Sunday.
2. Each meeting before the competition we will discuss the goals for each competition, and provide a basic sketch for the Arduino which can be tweaked within the goals for winning.
3. The 4th meeting of the month will be the competition. Depending on what the challenge was/is will depend on how a winner is chosen.
4. Winning will give you bragging rights.
5. The Arduino base sketches will be on the Automation Technology Clubs GITHUB.
6. Each member of the club or every robot in the competition should be giving it’s own identification number or color flag. This serves two purposes.
   1. IF all robots look alike it will be much easier to determine a winner from a number or flag. (Names probably shouldn’t be used as there could be more that one of someone entering the competition)
   2. Inside the arduino sketches and for competitions where the user can control his/her robot directly. The identification number/flag color should be used as means of connection. The ID number/flag color also needs to be included in the comment section (near the top of the sketch) for those competitions where looking at source code is used in the judging.

**THINGS NEEDED FOR MEETINGS:**

1. Computers/laptops with Arduino IDE (1.6.7 installed), or bring your own personal.
2. Some small tools for adding sensors, or making minor adjustments to your robot.
3. tables and chairs

OTHER THINGS:

1. Each owner of the robot will be responsible for providing or buying the additional sensors, needed to complete the challenge.
2. Each owner will be responsible for doing the work on his/her robot. Of course there will be plenty of help around if needed.

Ray stated at the last meeting he probably had enough parts right now to build 10 more robots, so if a member needs one, he will have them avaiable. Cost has yet to be determined, expect to be more than inital run.

\*\*\* Didn’t ask this but for proposal \*\*\*

Members that already have the alpha/beta robots can buy the new/final version without the electronics for $XX.XX

This will upgrade everyone to the final version of the robot, and keep everyone on the same page. It shouldn’t be mandatory to do this however if you like your alpha/beta robots. (I think you’ll want to once you see the new design).

**MEETING NUMBER ONE:**

I am think we try to schedule this for Saturday Feb 6, this will be a planning meeting.

GOALS For This meeting should be to get everyone the new kits if they need them or replacement/updated plastics.

At least three or more competitions should be determined for the next 3 or more months.

Also decide how a winner is chosen is it going to be a number of points speed better software?

This will give people enough time to order/aquire the sensors parts needed for up coming events. As we know shipping from China can take anywhere from a couple of weeks to a month and a half. (and sometimes doesn’t show up at all) this will give everyone time to get what they believe they need. (Ray will have a parts list of parts that the robot was designed to work with)

The competition for this month should be something that the basic/no sensor model can do.

I’m not entirely sure what that might be yet, but since not everyone has a cache of parts, and my parts are limited (I don’t mind sharing what I have, but I may or may not have enough to complete my robot and yours) Also Ray is still waiting on some parts him self, so his parts maybe limited as well.

On the 1st meeting someone (me - LeRoy probably) can show a very very basic way to use the GITHUB repository that was setup.

1. Need overhead projector and computer/laptop or some type of display
2. Everyone should try to clone/change and update github while at the meeting so they see how it works (A “TESTING” repository can be setup for this) (Computers/laptops will be needed)

Meetings should be held each Saturday - With the last Saturday of the month being the competition.

**COMPETITION IDEAS (Proposed):**

1. Autonomous Soccer Playing robot (Advanced) Using sensors (to be determined) and push-bar/claw. This is a very advanced challenge and may take more than 3 weeks to work on.
   1. Is the ball going to be a color? (Color Sensor needed)
   2. Is the ball going to be magnetic? (Hall Sensor? something better)
   3. The goal will need to identified by some other method.
   4. Robot should be able to push the ball around, and shoot the ball toward goal. Opponent's robots should be able to intercept the ball before the goal and drive the ball to it’s goal. (Giving the need for both an offensive and defensive element in the program).
2. Remote controlled Soccer Playing robot (Moderate) Each owner can decide how they would like to control the robot. Push-bar/claw would be needed. A basic sketch show one possible way to control it will be provided. We can show a couple of different ways to send and recieve data over a wire or wireless. The design and use of which ever method would be up to the owner of the robot. Control can be in the following (or any other way you can think of)
   1. Control by wire (long wire attached to your robot, could get messy and means would need to be taken so that robots can not be tangled in the wire)
   2. 433/900mhz - Low cost, fairly easy to use means of one way control (Myself and Jim both controlled our robots using a 433mhz transmitter and joystick)
   3. bluetooth and androind/iphone app - advanced method but fairly low cost.
   4. WIFI (ESP8266) adhoc mode is probably recommended. Android/iphone control, web-based control, etc.
   5. Other means.
3. Line Following this could be a speed challenge, it could be a programming challenge. It could be a time challenge. (Basic) IR Sensors will be needed, and a basic sketch will be used for demonstration.
4. Drawing challenge - Writing something (“Hello World”), drawing something (Circles, Square, Circle inside Square). Make a picture. (Moderate) Additional Sensor needed: Wheel Encoder. Sketch can be provided showing the use of the interrupt, and counting the wheel pulse.
5. Memory Challenge (possible to use a stock robot, no additional sensors?) Robot doesn’t know anything, is shown something or does something, and without user intervention can repeat the task. (Basic to Advanced) depending on what the task is. May need the addition of wheel encoders, and buttons
   1. Maybe a good first challenge (?)
6. Robot Sumo - while I believe our robots fall outside of the size for official sumo competition, there is no reason we can’t hold our own. Addition Sensors: IR, accelerometer, wheel encoder. It comes down to programming for this since our robots are all equal matches for hardware. Push the other robot out of the ring. Probably do something like round-robin and best 2 out of 3 wins. Basic sketches for additional sensors can be provided. (Basic to Advanced)
7. Puck Collect challenge - The idea is to collect your color “puck” - and return them to your home base. How you do this is really up to you. Some ideas are color sensor, vision sensor, and wheel encoders. (Advanced)
   1. A variation of this could be find all of one size ball
   2. another variation could be two halfs of a table each start with the same number of balls (different colors and sizes), each robot tries to clear it’s side by tossing balls over the wall. This is either time based (say 3 mins) and then count the number of balls on each side to declare a winner. Or the 1st robot to clear his side is the winner.
8. Freestyle (?) demonstrate your robotic creation - This may be a good first challenge as there really are no rules. Judging is done by stating what you want your robot to do, showing it doing that thing, being able to repeat that thing. And source code. it’s a points based system, so who ends up with more points wins. (Basic to Advanced)
9. Basket or other type of “shooting” challenge. How many of a “thing” can you get into a basket that is off the ground in a given time period. (Advanced)
   1. variation - how many field goals in a given time period
10. Voice Control Challenge - (Moderate) control your robot with your voice, source code, hardware used and how well it works could all be used to determine a winner.

Other Ideas, which is one reason to have a planning meeting at least once every couple of months.

**JUDGES:**

We are all doing this to have fun and learn, and since winning only gives bragging rights for a few weeks. I propose either rotating the judges, or having a members of the club who are not directly doing anything with the robotics “team” be the judges - based on given set of rules for each challenge. I think there should be a “panel” of 2 to 3 judges for each competition, unless using the rules a clear winner can be set without the need for a judge at all (Sumo, time based challenges, counting, moving challenge, shooting challenge all come to mind if the rules are clear at the start a judge will be less likely to be needed.)