Meetings

Tuesday, April 23rd

* Added lab 5 code to the mini project.
* Tilt forward once, start the car in that direction.
  + Tilt back after starting the car, stop it.
* Tilt backwards once, start the car in that direction.
  + Tilt forward after starting the car, stop it.

Thursday, April 18th

* Continued to debug gyro code.
* We do need part 1 of lab 5 to be uncommented.
  + If it is commented out, then every time the Discovery board is reconnected, it will not work.
  + It needs part 1 to establish a “connection” to the gyroscope before reading/writing to it.

Tuesday, April 15th

* Work for about an hour to refine the gyro code in lab 5 so it’s easy to port over.
  + Debugging gyro code.
* Taped the breadboards to a board so that they don’t wiggle as much.
* Cleaned up comments and added better ones.

Thursday, April 11th

* Meeting with Ashton
  + Mainly discussed our progress with Ashton—progress is very good; just continue what we are doing.
  + Does using the gyro count towards the I2C component? Doesn’t matter! What matters most is that we’re doing something FUN.
  + What could we do about the car that doesn’t exactly run wheels down? Check the batteries. It could be we have a bad vehicle. Regardless, if it works fine while upside down, then don’t worry too much about it.
* Work for about an hour on implementing the gyro or setting it up.
  + Soldered 9v terminals to the transmitter to mount it to the breadboards.
  + Taped the transmitter to the breadboard.
* Afterwards, review for final.

Tuesday, April 9th

* Straightening the bendy wires.
* Recall: we DO need the 9v battery for the remote to work.
* Soldered wires to the “staples” of the board.
* Soldered a wire to one of the ground connections.
* Can adjust the STM to output 5v by setting a 5v tolerant pin to open-drain (no pull-up/down resistance) and attach a pull-up resistor to the pin.
  + Using a 1k resistor works well.
* PB6-9 pins are used:
  + Red—right, PB9
  + Orange—left, PB8
  + Yellow—forward, PB7
  + Brown—back, PB6
  + Black—ground, GND
* Meet on Thursday—get the gyroscope to work (lab 05)
  + Interfacing with the gyro is I2C, is that enough to meet the communication requirements?
* Next Tuesday ideas
  + implement a UART/USART where it prints out the direction of the gyro
  + use a potentiometer to turn left or right

Thursday, April 4th

* Meeting with Ashton
  + Hardwire the STM Discovery to the RC remote control to set an action high/low.
    - Connect buttons to the Discovery to output a high signal when a button is pressed.
  + When controlling the acceleration, can use a PWM—time-based to speed up the longer the acceleration is pressed?
  + **IF** we cannot get the car/remote to work, we are perfectly fine to transition to the NeoPixel.
    - **BUT** we need to decide now, though (before meeting on Tuesday)
    - Carter, Beverly, Nicholas meet after class.
  + Conversely, combine the NeoPixel idea with the RC car.
    - Attach a sensor to the car and have the LED strip show how close it is to an object by how many LEDs in the strip are lit up.
  + For the final video submission/presentation, talk about the process of how we started reverse engineering the car to see how it worked for this project.
* STM GND pin to “staple” of a “command”
* STM 5V pin to “bendy” of the same “command”
* How to change an output pin to 5v on the STM Discovery board?
  + Open-drain output type with a pull up resister (?)
  + Or else use a level shifter.
  + Will ask Cristian on Tuesday.
* Beverly – bring pliers to bend the bendy parts; solder gun for soldering wires together.
* On Tuesday:
  + Solder wires to the radio controller – mainly to the “staple” wires
  + Straighten the bendy wires and probably strip whatever coating they have to increase surface area.

Tuesday, April 2nd

* Discussed the exact scope of the project:
  + Rather than actually rebuild the remote control, since this is mainly a programming project, control the car via the STM discovery.
  + Leave the car chip alone.
* Wire the RC car into a breadboard to connect to the discovery’s RX/TX pins.
  + But how to do this?
* Due to difficulty of reverse engineering the RC car, may scrap it for controlling an LED strip via the discovering and displaying what patterns it shows on an LCD screen.

Friday, March 29th

* First milestone document due
  + Discussion with Ashton states that the last milestone may not be possible due to timing.
* Next meeting with everyone decided for April 2nd @ 8:00a

Wednesday, March 27th

* More in-depth discussion about what milestones to expect for the project:
  + 1st – dismantle the RC car, figure out components, and interface with Discovery Board
  + 2nd – accelerator
  + 3rd – turning
  + 4th – obstacle sensing