-----------------------------------------> Arduino Project Main ←--------------------------------

TODO: <UART vs I2C vs SCI vs Wireless connection>

* ~~UART (Serial Port) is too slow and syncronized hardly!~~
* ~~Wireless (BT) too much energy for simple operations!~~
* ~~SCI is good, but uses 6 wires (4 pins for command request/response)~~
* **READY:**I2C -> A4 as SDA + A5 as SCL + Voltage + GND (2 pins)

TODO: <Voltmeter for engines >

* **READY:** standard voltage divider with 2 resistors (100k/10k) can make it possible to measure voltage till 50V for Arduino. Must be set as one-pined sensor for each engine;

TODO: <Solar battery>

* ~~enable all-the-time solar battery turning while “HOPe” is moving.;~~
* ~~if horizontal angle of solar panel is lower than minimum or higher than maximum -> (try to set it to opposite state(min -> max, max -> min) and let it go automatically)~~
* **READY**: correct vertical angle of battery due to new photosensor(#3);
* ~~!!! for motor slave #101 add VOLATILE for all mode variables (mode, in\_data etc.) to fix errors with I2C received data;~~
* ~~!!! remove all Serial objects form onReceive() event handler on slave #101. They may lead to malfunctions in I2C receiving data!;~~

TODO: <Remove IR sensors of obstacles with US distance sensors>

* **READY**: HC-SR04 works more stable and can get distance but not just a signal of obstacle, so 4 IR sensors must be switched to ultrasonic;

TODO: <3D models>

* **READY**: main platform for controllers;
* **READY**: solar panel servo mount;
* **READY**: body kits and bumpers;

TODO: <Button on forward bumper>

* new forward “arrow” bumper;
* 1 or 2 different pins connected buttons on the bumper;

TODO: <Fix for central ultrasonic sensor connection with controller>

* **READY**: replace standard wires with pinned for solderless connection;

TODO: <Self tests>

* **READY**:implement tests for all sensors (3 ultrasonic + 3 photo + 1 voltage);
* **READY**:implement tests for all servos(1 for ultrasonic + 2 for Solar);
* **READY**:implement indicator of Error/Exception (for low battery voltage also as an kind of Error);

TODO: <Magnetometer>

* calculate angle depending of integer values from M-device;
* **READY:** maintain M-device into the “HOPe” and connect it to servo-shield(slave 101) shield by I2C;
* enable it working while turning angle is processing;

TODO:<3d controller (for additional functionality)>

- **READY:** add 3d controller with expansion shield;

- laser pointer for cat playground;

***POSTPONED***

TODO: <Camera>

* check an ability of Camera connection to new #3 Arduino controller (slave 102) ;
* check code workability and capturing of the images;
* investigate OpenCL lib;