

# Progress Review 1

Individual lab report – 02 || October 23, 2015

**Team Daedalus**

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Team Members:

Mohak Bhardwaj  
Dorothy Kirlew  
Pranav Maheshwari  
Shivam Gautam

## 1. Introduction

The team has been working on a structured plan and there has been considerable progress in the work towards Fall Validation. We succeeded in fulfilling the goals for Progress Review 1 which were as follows:

1. Acquisition of mobile platform for testing purposes and setting it up with Arduino Mega 2560.
2. Setting up a backend Bluetooth connection between smartphone and PC.
3. Conducting a literature survey on communication networks and protocols and coming up with an appropriate idea.
4. Getting started with basic smartphone app layout after finalizing language and tools to be used.
5. Conducting a survey for cameras to be used for obstacle detection.

## 2. Individual Progress

The DFRobot Baron 4WD platform arrived around noon on Tuesday (October 20). My task was to assemble the platform and make it up and running with the Arduino Mega 2560, which I had acquired from the lab inventory.

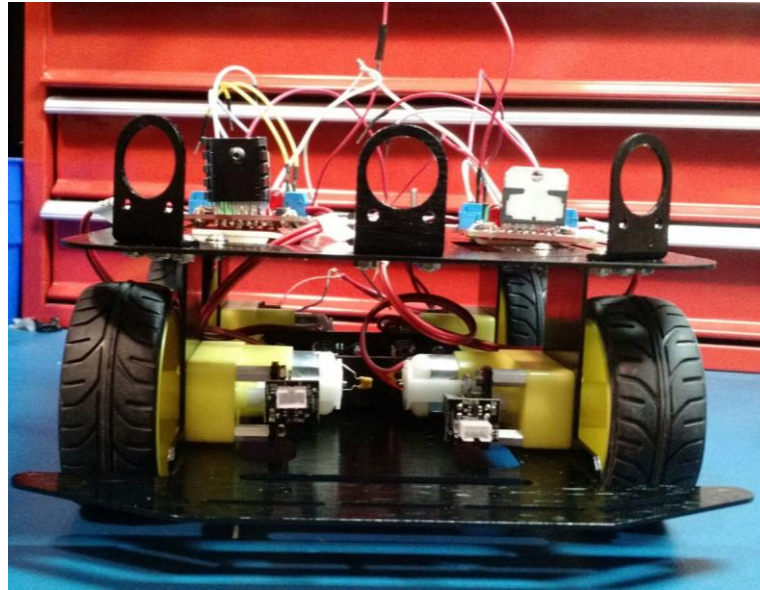
I started the assembling the parts using whatever documentation I could find online as no guide came along with the package.

The first step was soldering wires on the motors. Moreover, I had come across a review for these motors which said that they require capacitors to be soldered on them before connecting them to the drivers. I selected 100nF monolithic ceramic capacitors for his purpose. After this, I moved on to connecting encoders that came with the package on to the front motors.

Following this, I mounted the motors on the chassis, attached the sensor mounts, battery holder and power switch and made the connections of the switch with the battery pack.

It was time to hook up the motors with Arduino Mega. I used two Solarbotics Compact motor drivers for the four motors.

For now, the motors were driven using differential drive. The Arduino code was written for basic forward, backward, left and right motion.



*Figure 1. Assembled DF Robot Baron 4WD platform*

### 3. Challenges

The main challenge I faced while assembling was that some of the parts in the package did not match with the ones in the instruction manual. I had to find appropriate washers, tubes and screws in the lab inventory in order to fix up the parts.

Another overall challenge is appropriate work allocation within the team. With proper team management, we are hoping to resolve this as quickly as possible.

## 4. Teamwork

Member	Tasks
Pranav Maheshwari	Worked with Mohak on the literature survey for vision based obstacle detection in terms of hardware and software, gave inputs for website content
Shivam Gautam	Worked on literature survey for communication system hardware and protocols, gave inputs for website content
Mohak Bhardwaj	Worked on literature survey for vision system, Bluetooth connection between laptop and smartphone, App GUI, gave inputs for website content
Dorothy Kirlew	Worked on GUI of Android app and app task breakdown, CoDR feedback and website updating website content

For the website check, I worked together with the team to improve existing content and create new content as needed.

## 5. Future Plans

- Acquire/ place order for the necessary hardware to test mesh grid setup
- Acquire Kinect, set it up on the mobile platform and setup interface using ROS
- Create communication channel between ROS and microcontroller Demonstrate mobile application's back-end capability of establishing serial communication over Bluetooth