**Husky Status Report**

1. Initial delays in project initiation were due to the late arrival of the ordered materials.
2. The framework for the husky body was completed using PVC pipes however it was met with a number of problems in structural stability.

***Problems:***

* + 1. *Cylindrical pipes led to improper or not perpendicular drilling holes as a result of free hand drilling instead of using a proper chuck or vice.*
    2. *Cylindrical pipes had a point contact surface that made it difficult for the proper installation of the servo holders.*
    3. *Overall the PVC pipes had a flexibility that made the structure look a bit slumped in the front or side views. ‘*

***Solutions:***

1. *The drill points for the later pipes were separately marked and checked with level-gauge for drilling properly to ensure only a small error in the drilling positions.*
2. *The servo holders were glued in position using the glue gun.*
3. *The material property could not be changed hence it was suggested to use aluminum rods of (20×20) mm for better structural integrity and solidity of the model.*
4. The servo holders were 3D printed using an existing model used for similar motors.
5. T-Joint connectors were modeled using Fusion 360 and 3d printed.

***Problems:***

* + 1. *Dimensions were miscommunicated and the printed model that an enlarged pipe connector.*
    2. *Dimensional loss was not mentioned and as a result when printed the dimensional thickness of 2mm in the model was reduced to less than 1mm that led to weak body of the T-Joint.*
    3. *3D printing is both costly and time consuming which led a small delay in the framework.*

***Solutions:***

1. *The drill points for the later pipes were separately marked and checked with level-gauge for drilling properly to ensure only a small error in the drilling positions.*
2. *The servo holders were glued in position using the glue gun.*
3. *A cost effective solution of using a 1.25 inch PVC pipe for the 0.75 inch PVC pipe used for the rest of the body and stopper to hold the motor and use a reducer to connect it to the rest of the husky body was made.*
4. The gear motors were installed inside the T-Joint and wires were soldered to the Circuit board.
5. A platform for the circuit boards were made of Foam board for the proper dimensions and bolted beneath the main body.
6. The limbs of the husky were attached to the body and the model was completed.

***Problems:***

* + 1. *The limbs were directly attached to the body and as such both the static load and torsional load were directed at the servo motors.*
    2. *Degree of rotation was not set up properly for the limbs and so the bending of limbs during calibrations became erratic.*

***Solutions:***

1. *A suggestion for using the clamps and bearing used for the* ***Alton’s*** *limbs were made for the husky. Thereby the static load will be supported onto the main body and only torsional load will be carried by the motors.*
2. *This was corrected during the calibrations by setting the home position of the motors as same for all. Degree of rotation same for diagonally opposite motors.*

***Requirements:-***

1. (20×20) mm aluminum rods 10 feet length for re-hauling the framework.
2. For the current model:-
3. PVC 1.25inch 1 foot pipe.
4. 3× (0.75 to 1.25) inch reducer.
5. 3× PVC pump adapter/stopper.
6. The GUI design of the husky was designed using QT designer tool and it is converted in to python.
7. Calibration of legs using microcontroller programming
8. . Movements of wheels in forward and backward direction.

***Problems:***

* + 1. *Movements of legs was not working*
    2. *Sudden sitting and standing posture of husky*
    3. *Movements of wheels are not in proper direction*
    4. *While combining the code of wheels with the servo motor code it does not work.*

***Solutions:***

1. *The improper working of legs was fixed using an extra power supply source..*

*ii .Sudden sitting and standing posture of husky was fixed by changing the angles using a calibration tool.*

*iii Changing the code and the movement of wheels are fixed.*

*iv work in progress.*

***Tasks Pending***

* + - 1. *Sensors interfacing*
      2. *Robotic arm interfacing*
      3. *Computer Vision*
      4. *Final Testing and deployment*