PROJECT IDEAS

Note - put ideas in the table wise form with respect to there categories (if you can’t figure out a category then you can make another)

Also add all the supporting material in the folder and label them well over here

<https://rsl.ethz.ch/publications-sources/software.html>

Many useful software in this link for various aspects

| General Big ideas |
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| * Step Climbing [Ashutosh]   + Whole-Body Motion and Landing Force Control for Quadrupedal Stair Climbing (**Paper for quadruped**)   + Step climbing robot ASTERISK (**Paper for Hexapod**) |

| Robot Controller |
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| * Model Predictive Control [Ashutosh]   + Ability to predict and better choice for controller in general   + Whole-Body Impulse Control and Model Predictive Control for Quadruped (**Paper**)   + Model Predictive Control for Trajectory Tracking for UAV (**Paper**)      * Open Torque-Controlled Modular Robot Architecture for Legged Locomotion Research (**Paper**) [Ashutosh] |

| Github repo |
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| * Making test cases using pytorch(inspired by trotbot repo) [Pranav]      * Making a handbook for the entire project [Ashutosh] |

| Electronics |
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| Automation |
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| * ROS Package of Boston dynamics’ Spot   + <https://clearpathrobotics.com/blog/2020/09/clearpath-robotics-releases-ros-package-for-boston-dynamics-spot-robot/>   + <https://github.com/clearpathrobotics/spot_ros> |

| Path planning |
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| User app control Interface |
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| * Vuforia Spatial Toolbox [Ashutosh]   + Interactive ui to get user input for goal and pose and move the robot there <https://spatialtoolbox.vuforia.com/>   + Make the robot controllable with this app and explore further tasks which could be achieved with it.      * Make Controller app .apk [Ashutosh]   + The app will have complete control of the robot (somewhat like how spot is controlled)   + The app will have manual override for letting the user drive it with complete control of height, gait etc.   + The automated mode will take user input for goal and pose for robot   + App also might have constant video feed from cameras of the robot or has some features from the Spatial toolbox. |