

Title: A low-cost smartphone-enabled quadruped robot

Level: Bachelor/Master

Keywords:

Quadruped robot, machine learning, Android, smartphone

Supervisor: Naveed Muhammad, **Co-supervisor:** Yar Muhammad

Skills required:

Excellent skills in machine learning and programming

Description: Open source and low-cost legged robots have gotten a significant attention in recent years from the robotics research community. High-end robots with very robust control capabilities also exist, but are high in cost. At the same time, machine learning has enabled smartphone based low-cost and deep-learning powered wheeled robots (*cf.* figure below) such as [1].

In this thesis project you will investigate low-cost quadruped robots. After a thorough literature review you will design and build a robot platform. Then you will investigate machine-learning based capabilities for tasks such as person recognition and follow, and autonomous navigations for such a robot (which is more challenging in comparison to wheeled robots because of their relatively smooth drive/gaits).

Some relevant literature:

[1] Matthias Müller, Vladlen Koltun, “OpenBot: Turning Smartphones into Robots”, arXiv:2008.10631, Available at: <https://arxiv.org/abs/2008.10631>

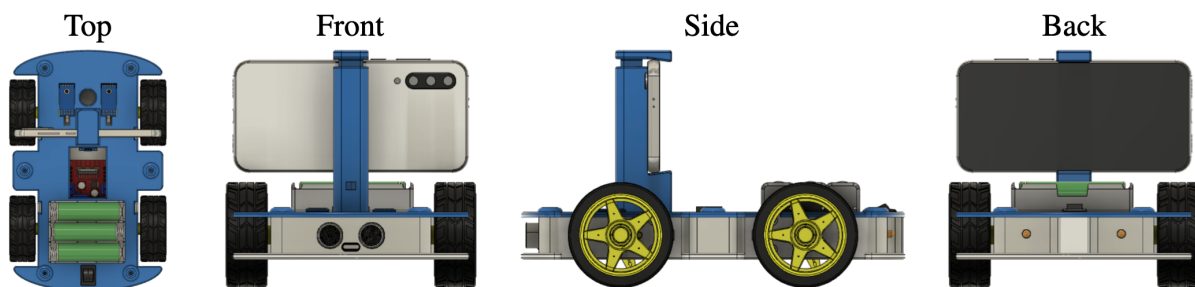


Figure: Openbot from [1]