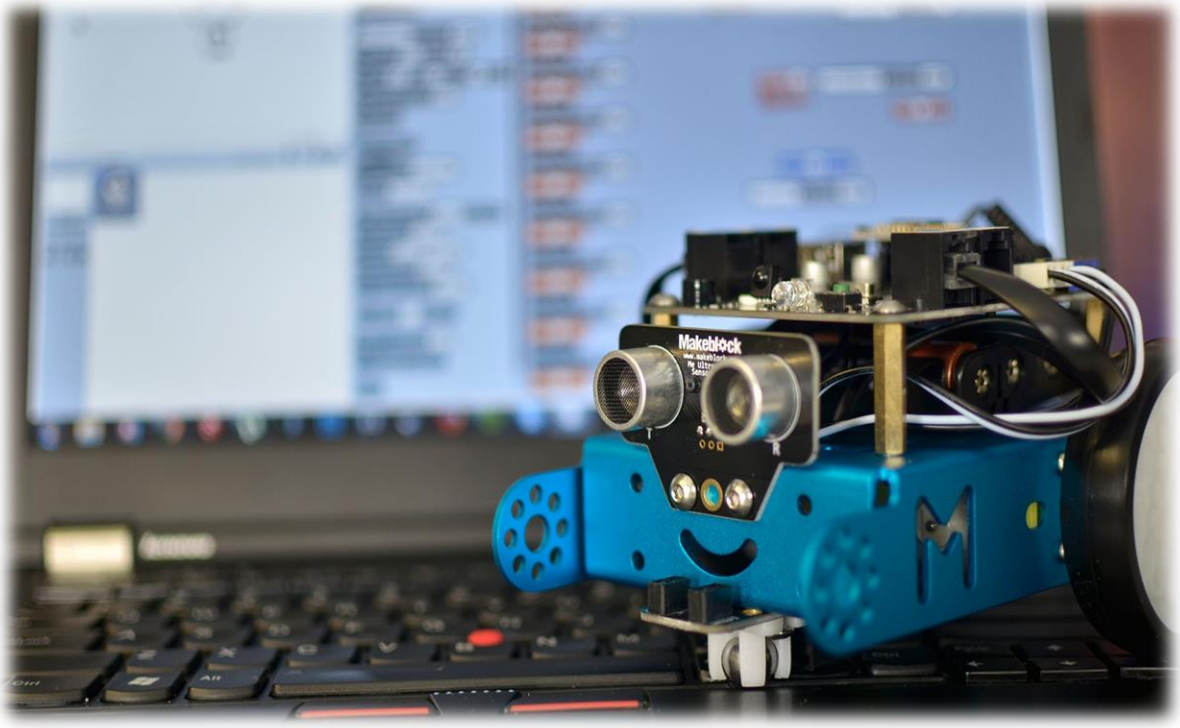
Remote Driving controlled over 4G

In the age of automated vehicles, the human factor is becoming less apparent in controlling the wheel, however this doesn't mean that it is completely removed from future cars. Remote cars have equal importance as unmanned units. There are still many aspects that Automated driving is simply incapable. Uneven and off grid terrains as well as areas that require medical aid after natural disasters still require human sensibility and judgment. With the new 5G network slicing the remote vehicles will be granted a good Quality of Service (Qos) allowing the driver to monitor and control the vehicle from distance. One such test was done by Ericsson in Kista research lab.



In this project students are required to use a remotely controlled small model via the 4G network on a track using camera monitoring in the front, sides and back on the model and try to avoid obstacles. It is also important to see the latency and calculate the time error that is introduced by remote communication link.

Further development

Introducing VR camera and live streaming as well as VR headset would eliminate the monitoring fault in the system and allows driver to have better control over the environment where the remote vehicle is moving around. If first stage is accomplished earlier than the time suggested, it is highly recommended to apply this feature the project and improve remote vehicle.

In addition, a robotic arm can be added to the car which can be controlled by another team and can help developing a vehicle that is suitable for aiding people in distress.

Possible hardware requirement

Remote controlled car (In case one is not developed by the team members), raspberry pi development kit. Arduino board, camera
Optional: VR camera and headset, robotic arm and controller

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