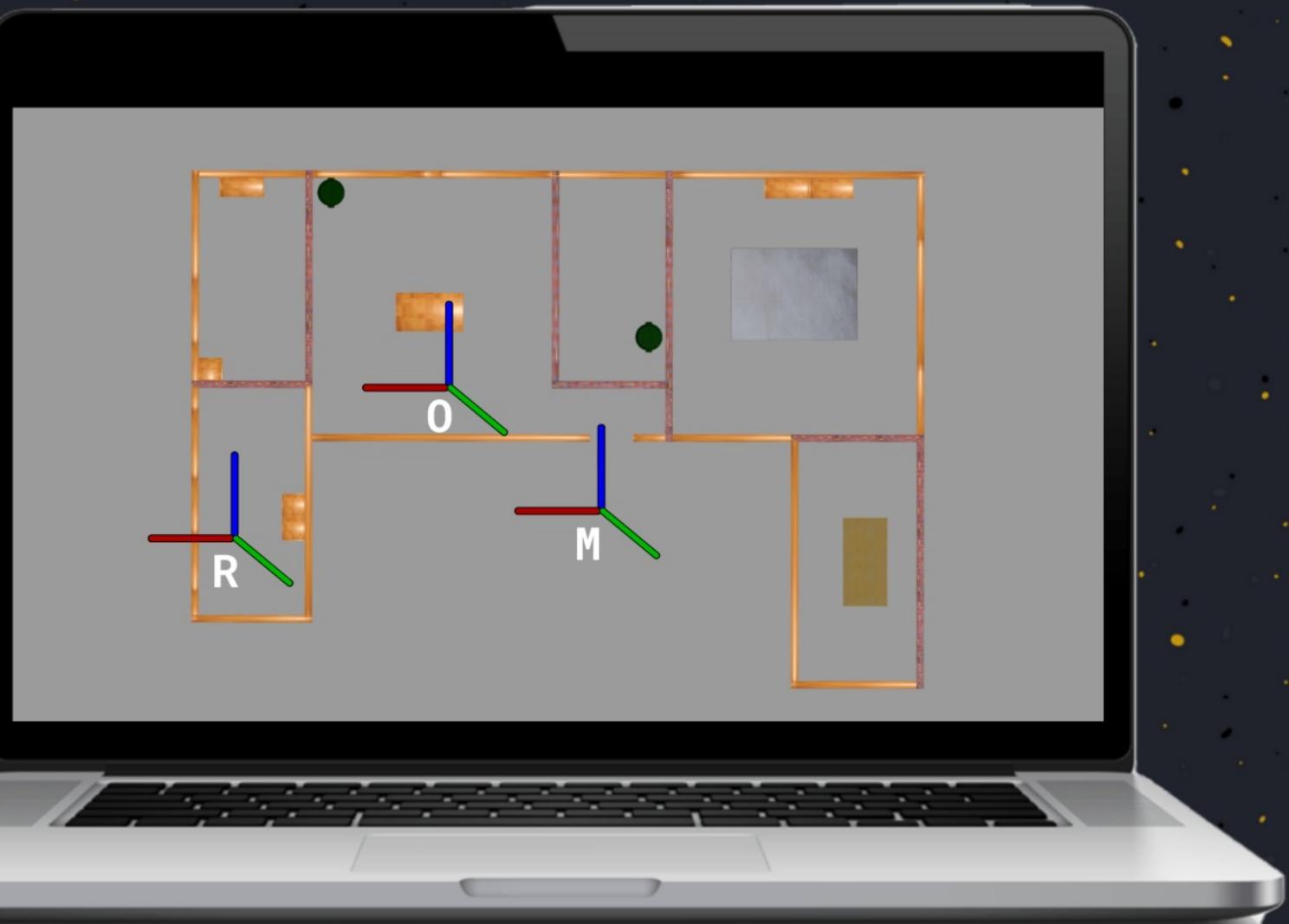


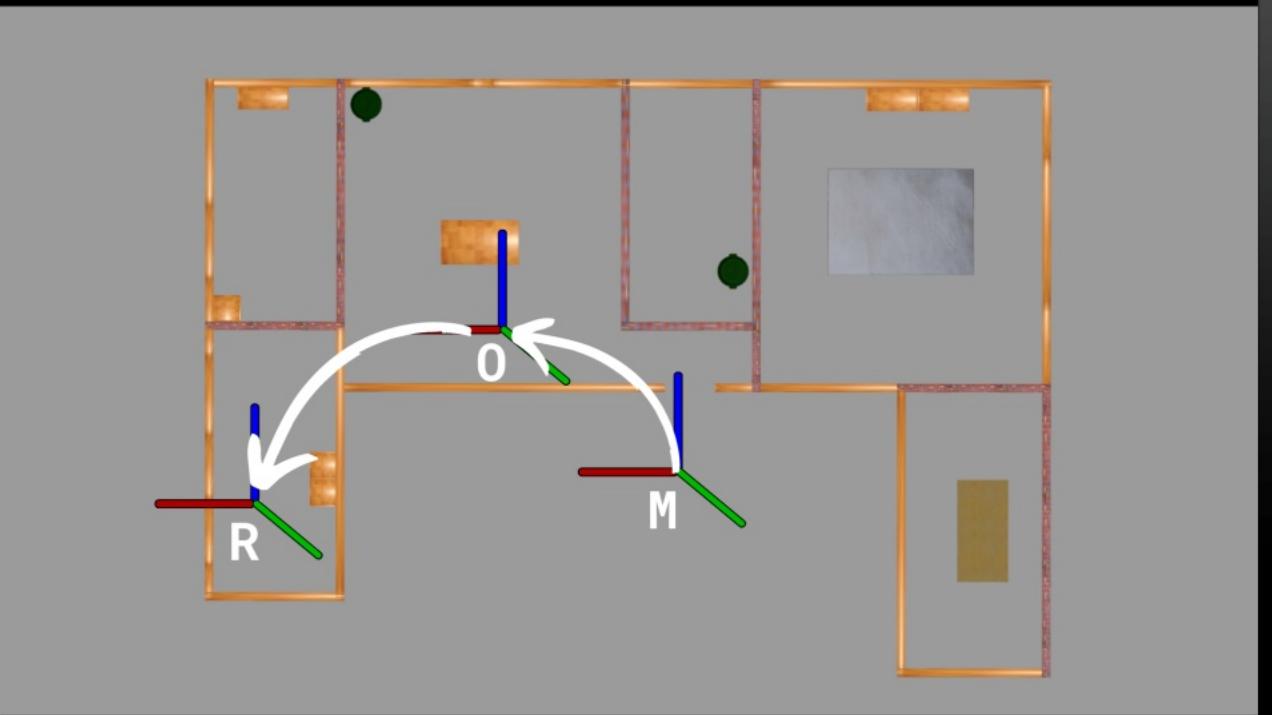
Odometry



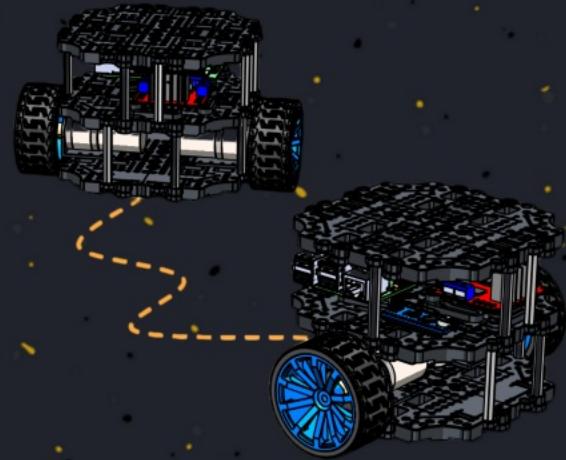
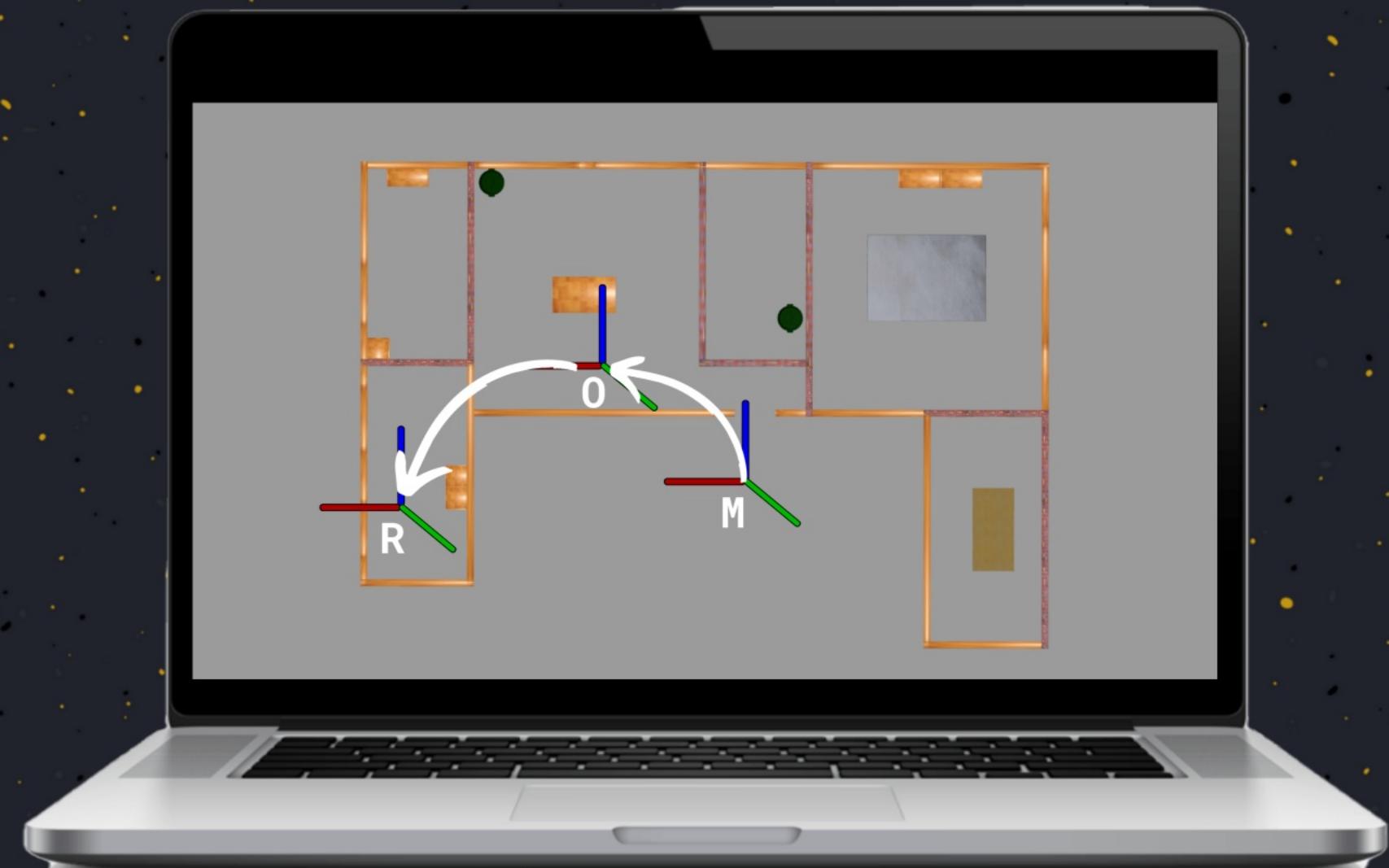
Odometry



Odometry

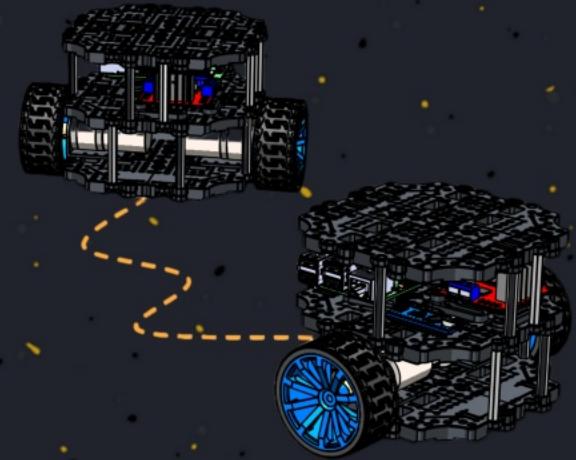
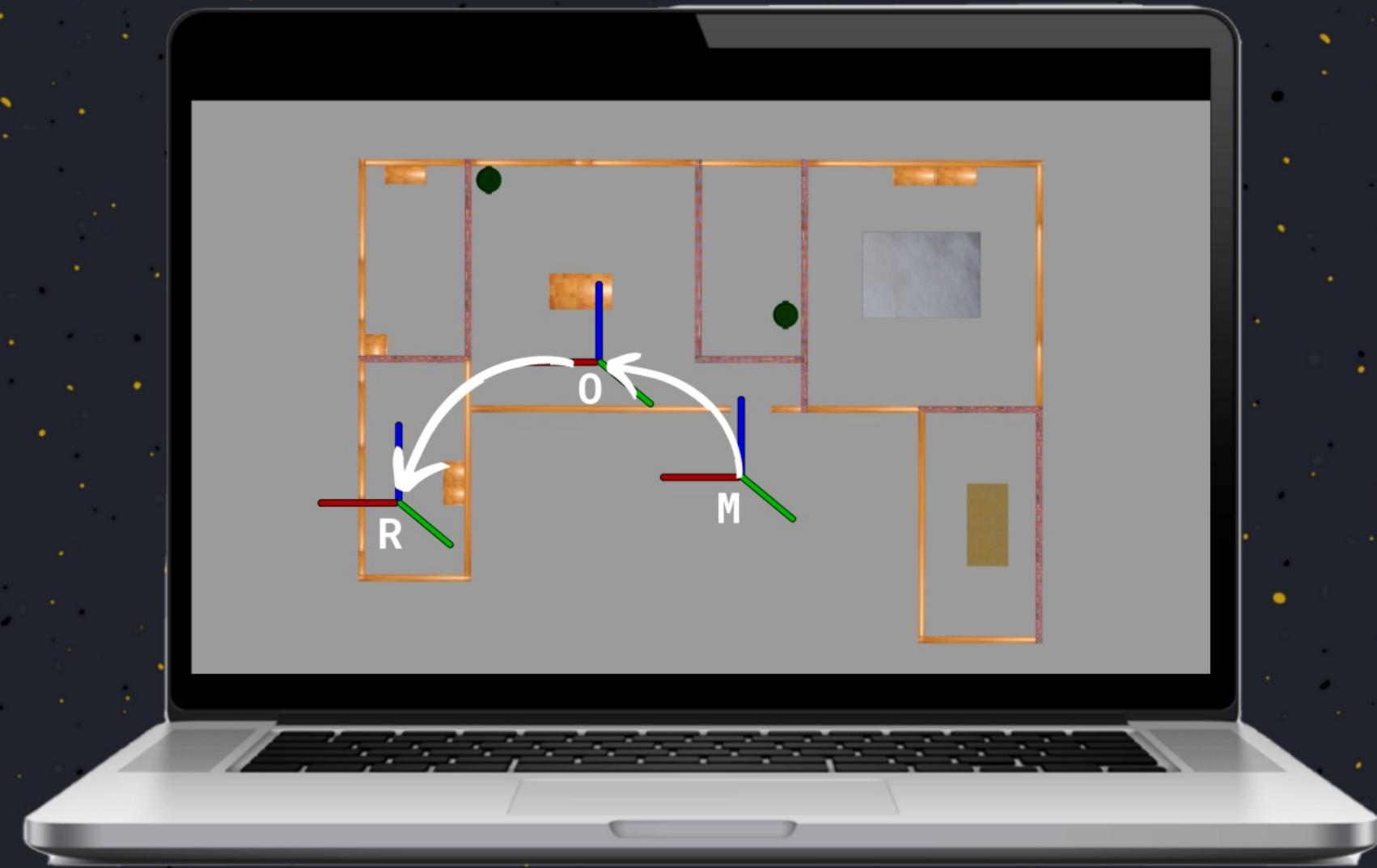


Odometry



Local Localization

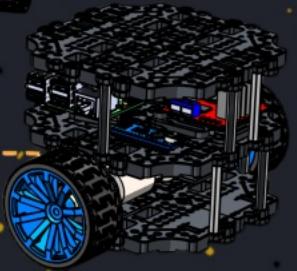
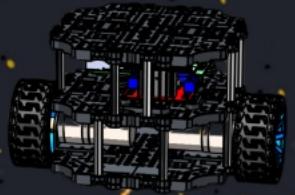
Odometry

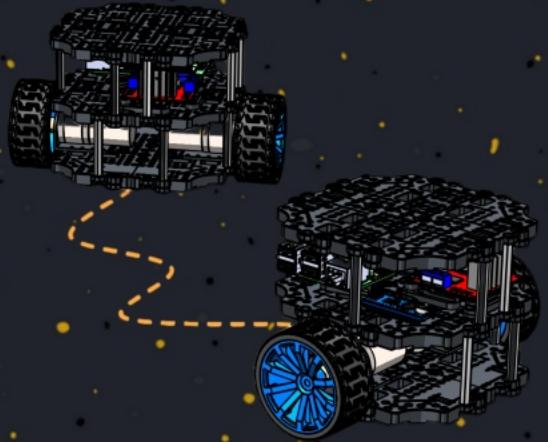


Local Localization



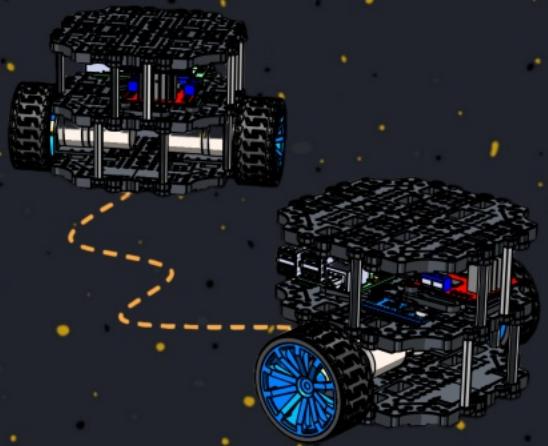
Global Localization





1m

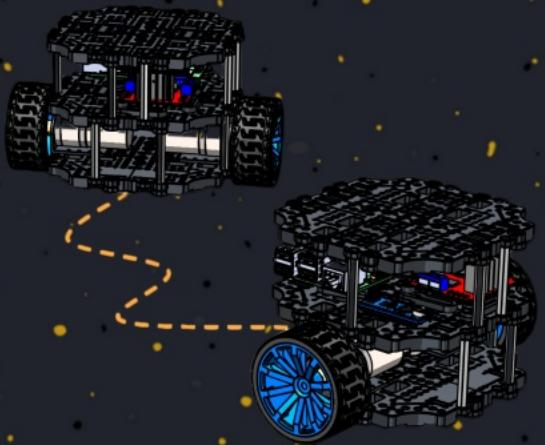




1m



1s

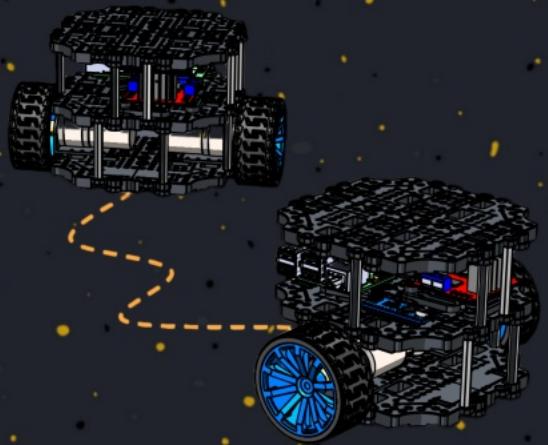


1m

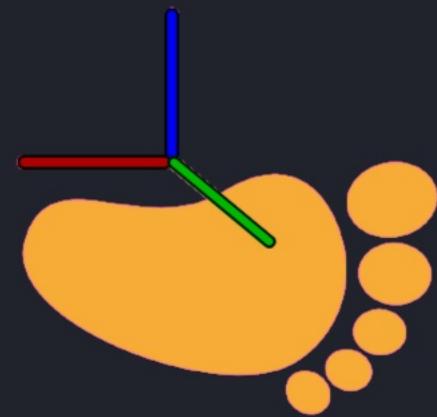


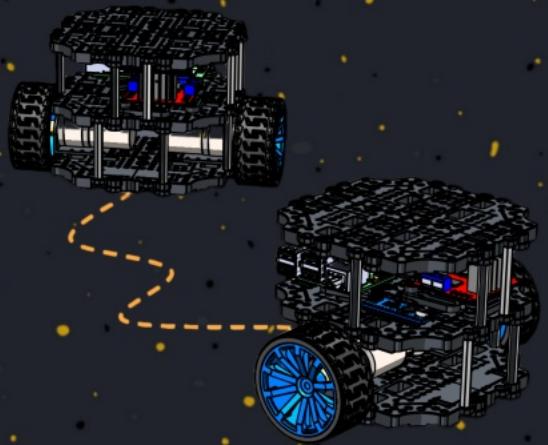
1s



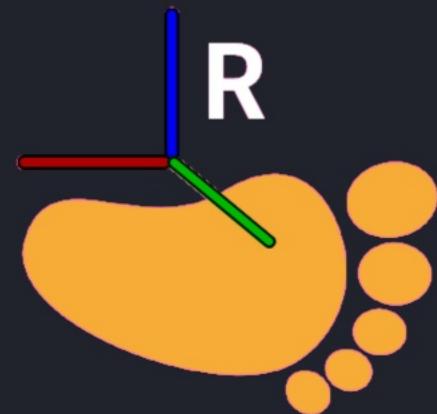


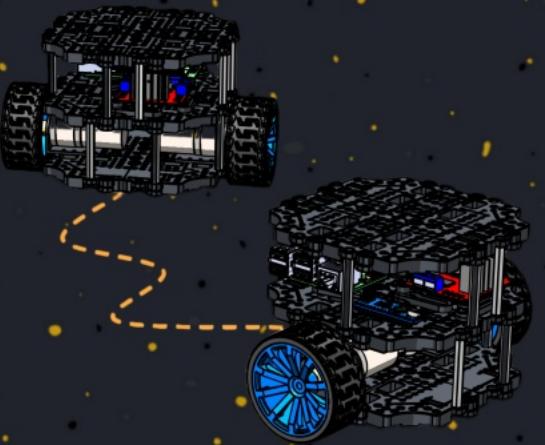
1m





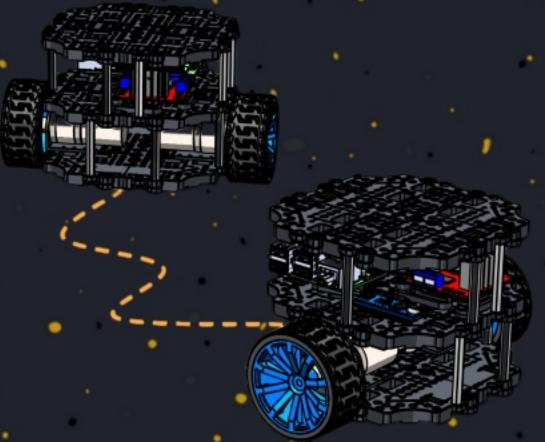
1m





1m





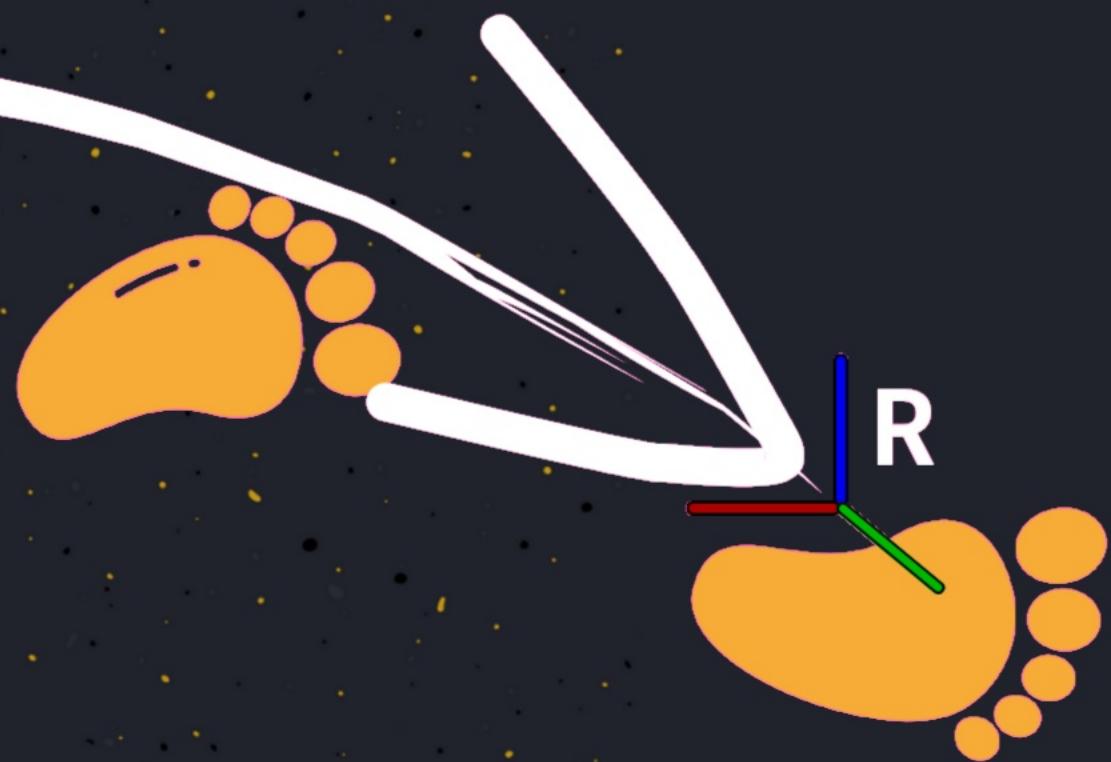
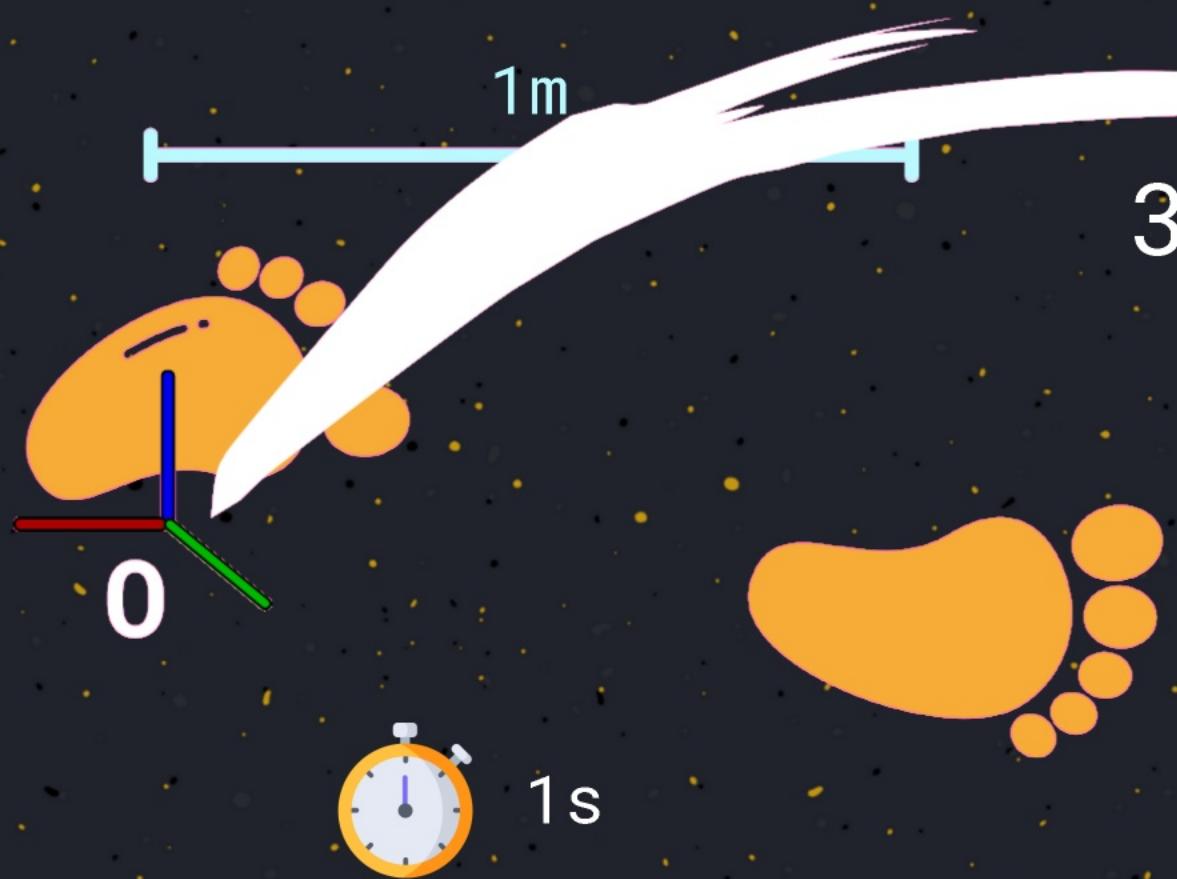
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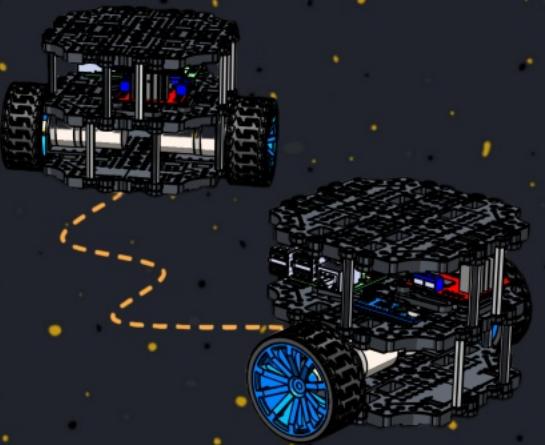
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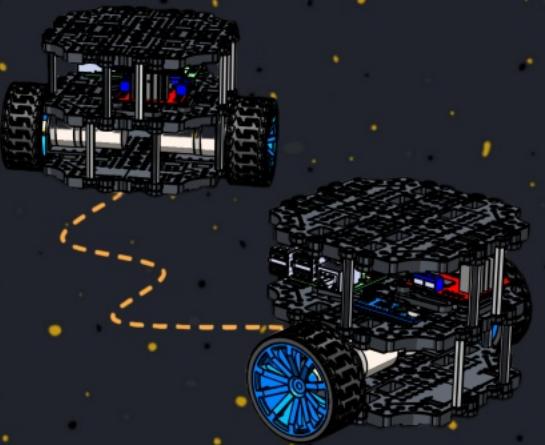
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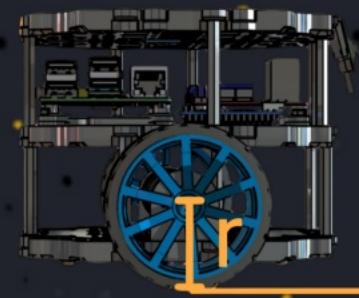


1s



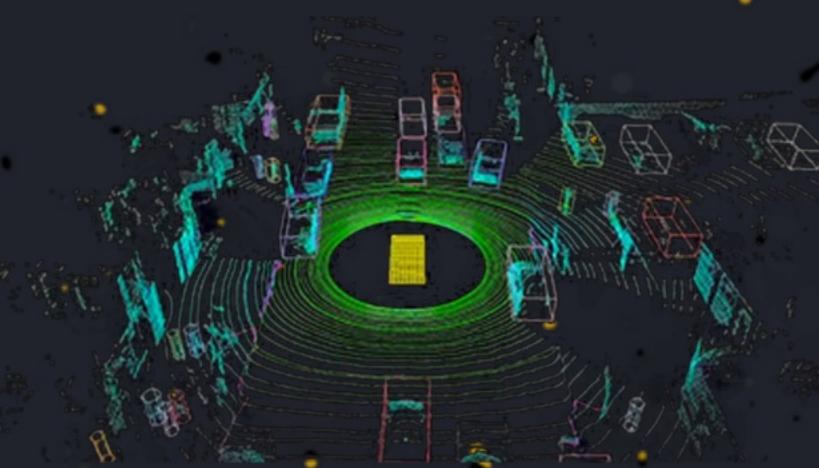
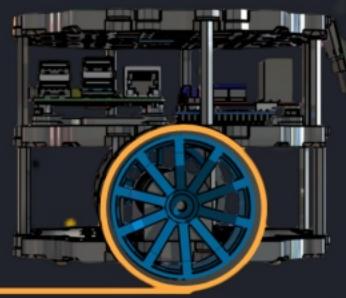




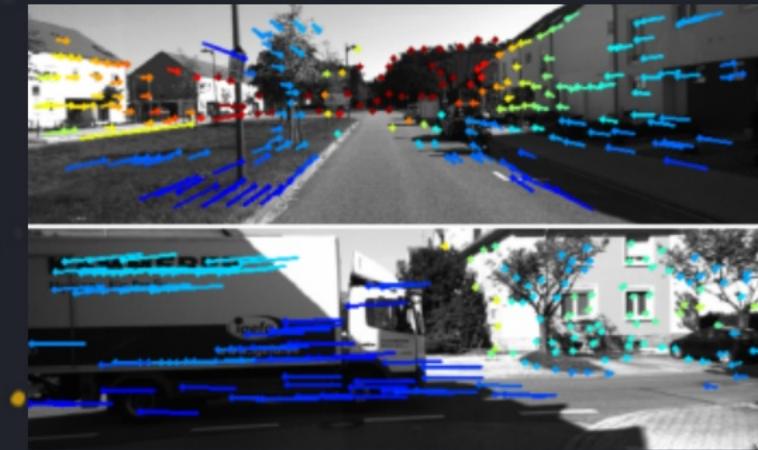


$$2\pi r$$

Wheel Odometry

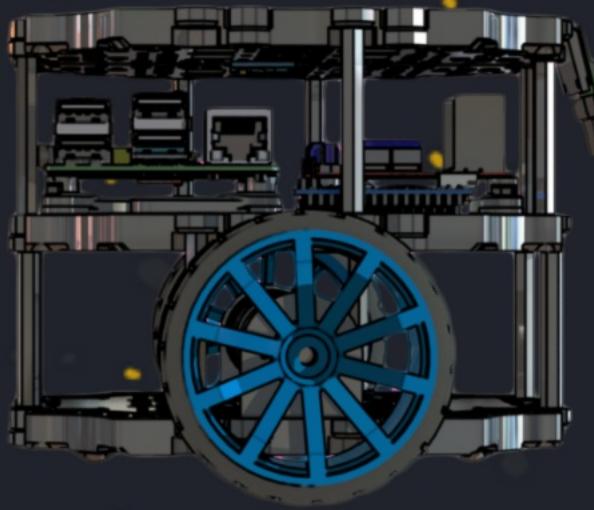


Laser Odometry



Visual Odometry

Wheel Odometry



Wheel Odometry



Wheel Odometry

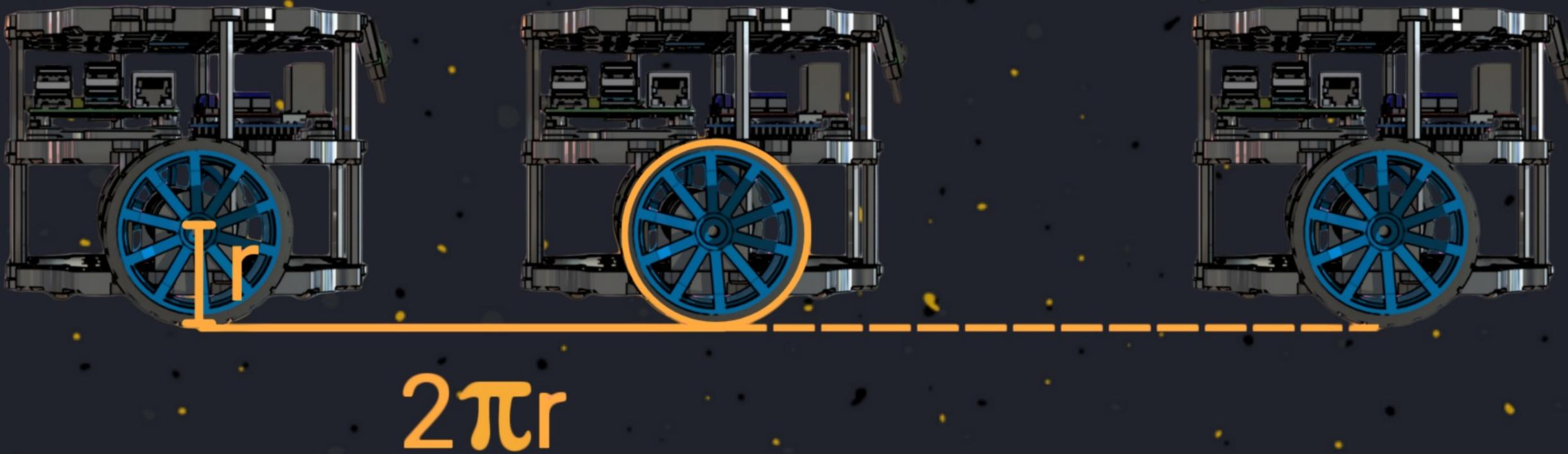


Wheel Odometry

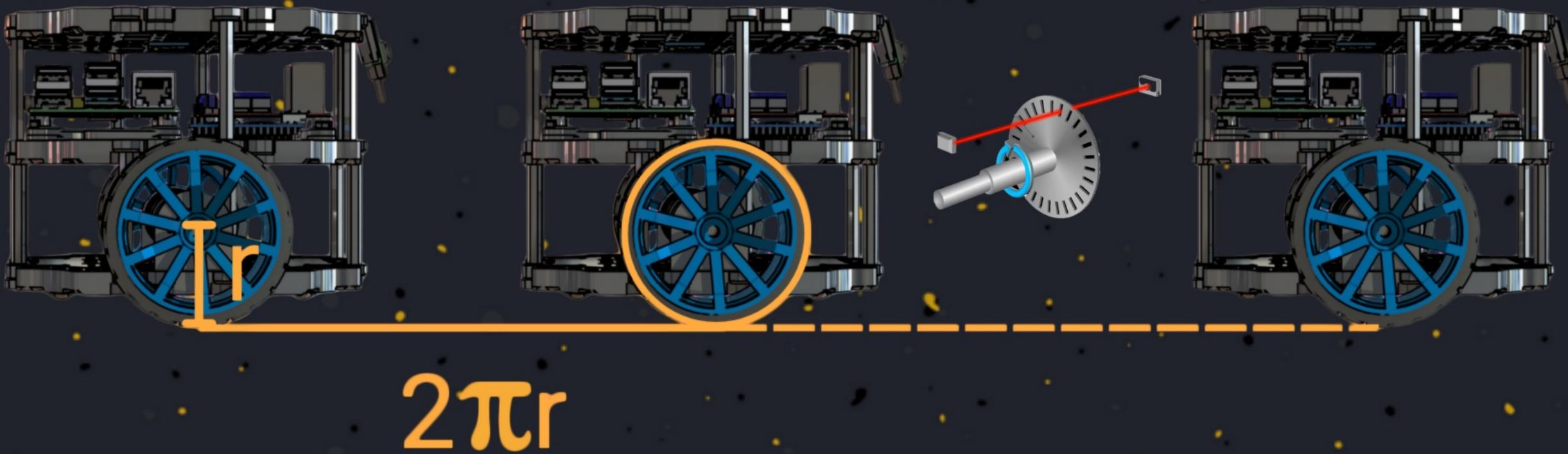


$$2\pi r$$

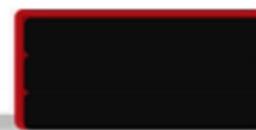
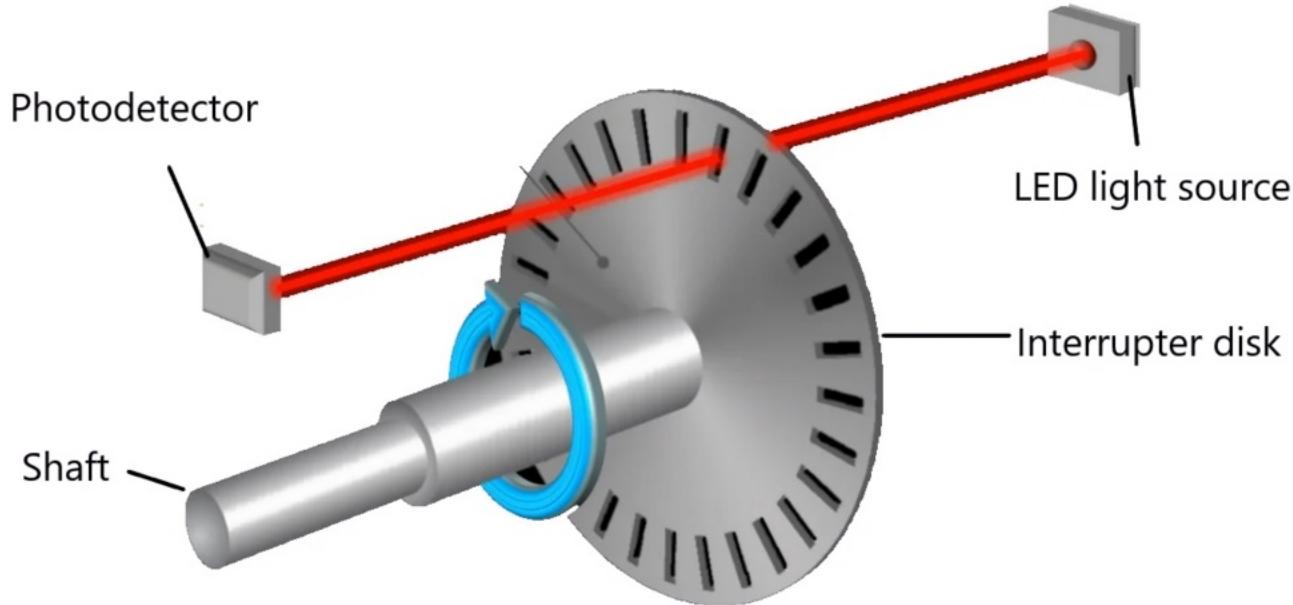
Wheel Odometry



Wheel Odometry

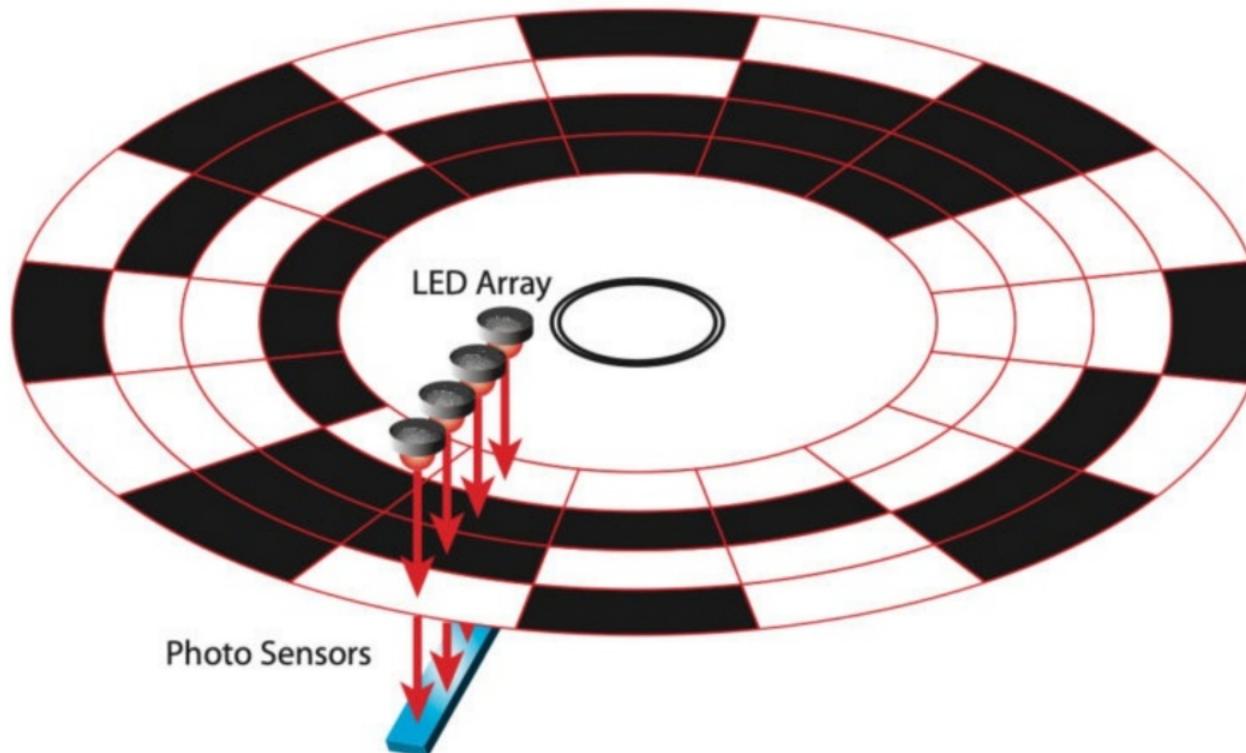


Incremental Encoder

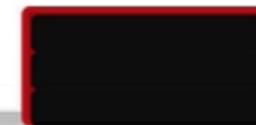
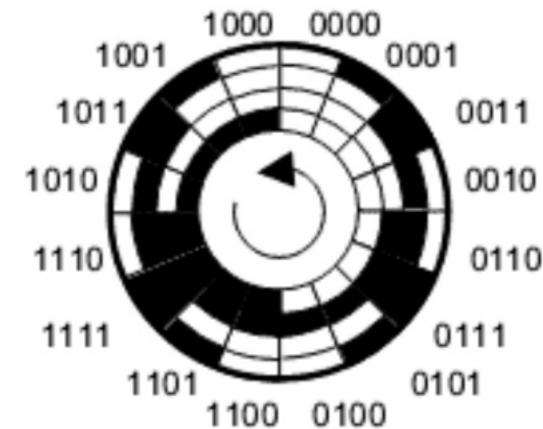
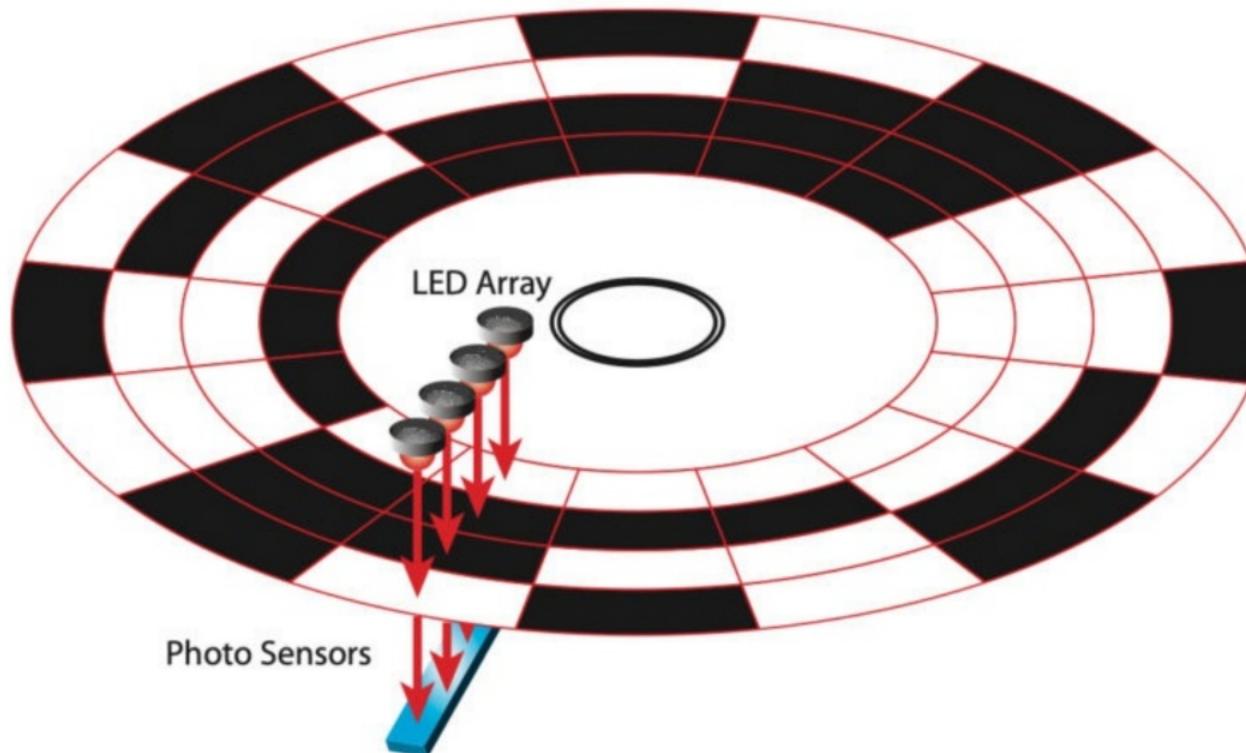


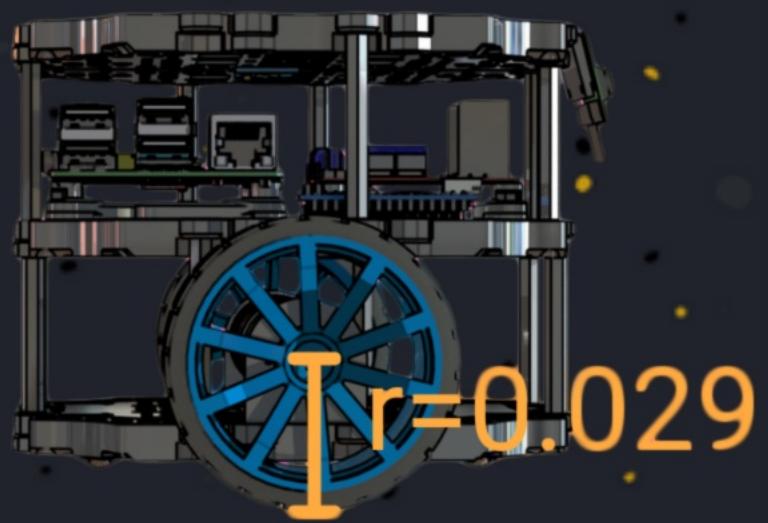
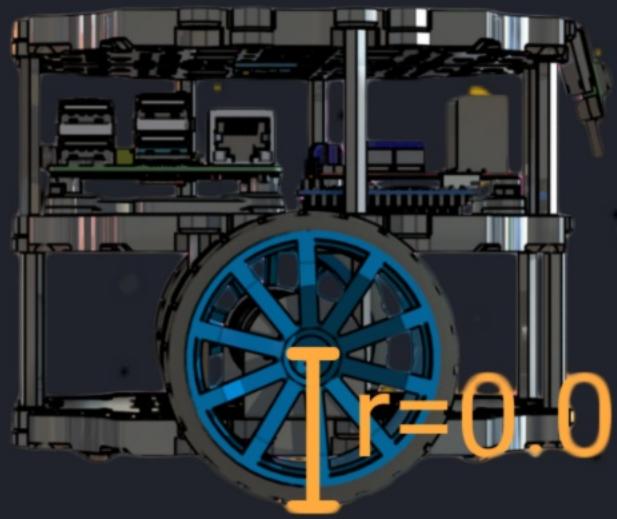


Absolute Encoder



Absolute Encoder



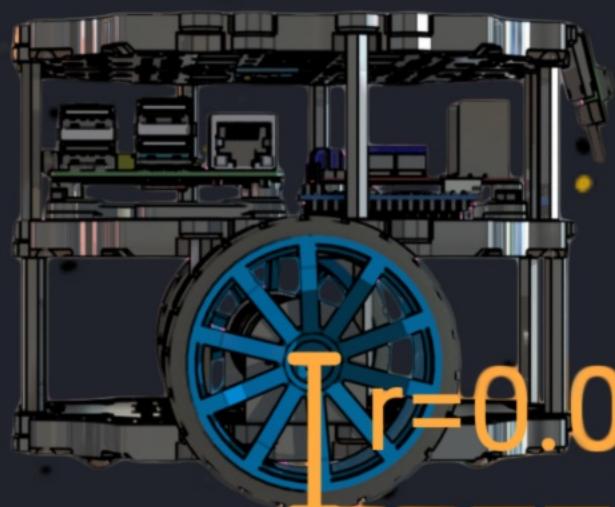




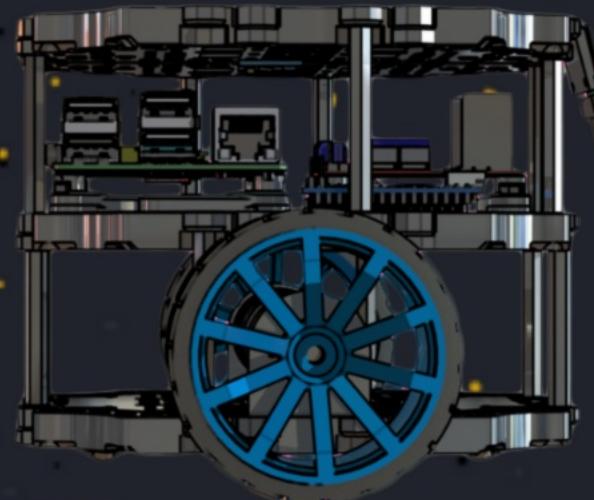
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$n=1000$

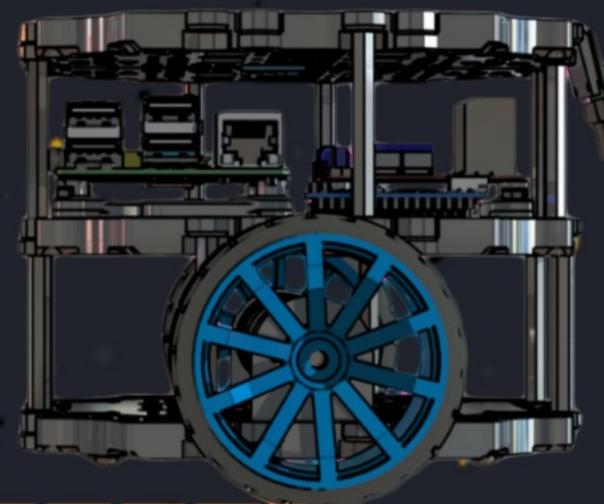


$r=0.029$



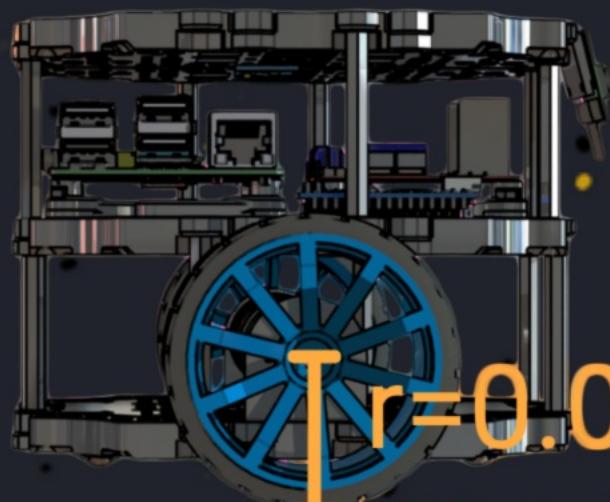


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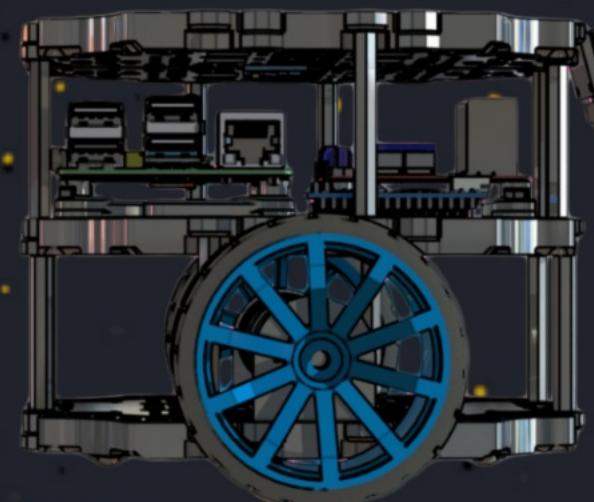


188.4m

$n=1000$



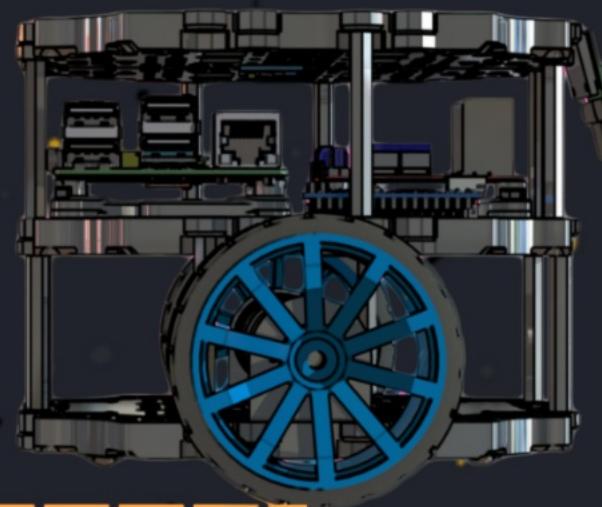
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182.1m

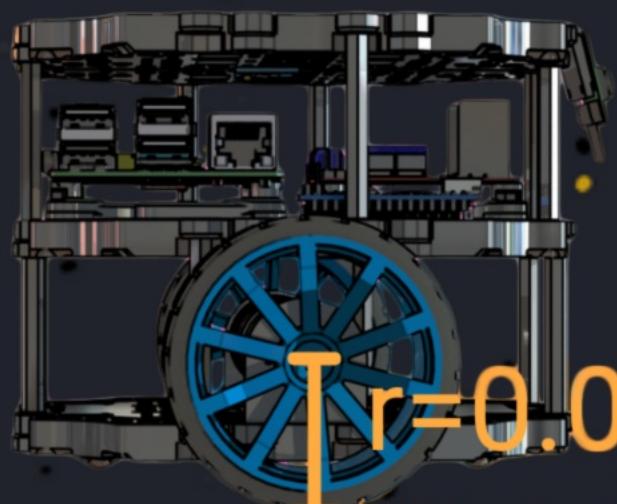


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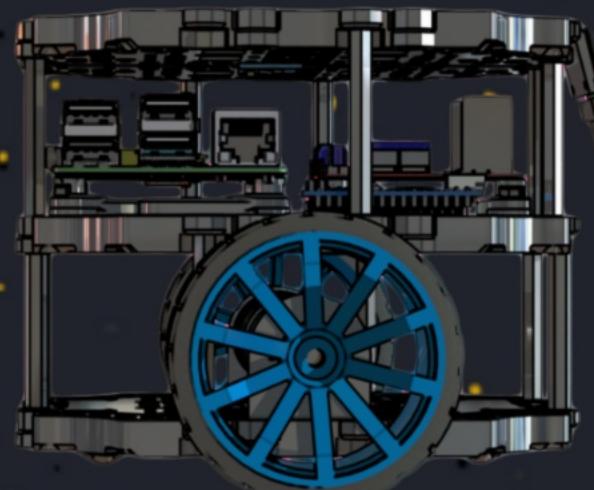


188.4m

$n=1000$

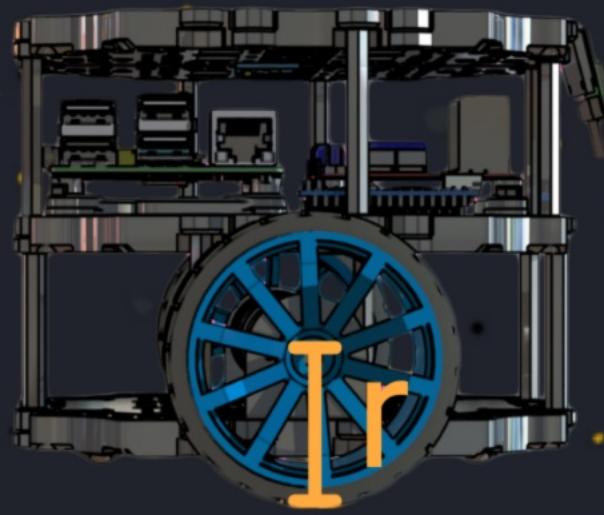
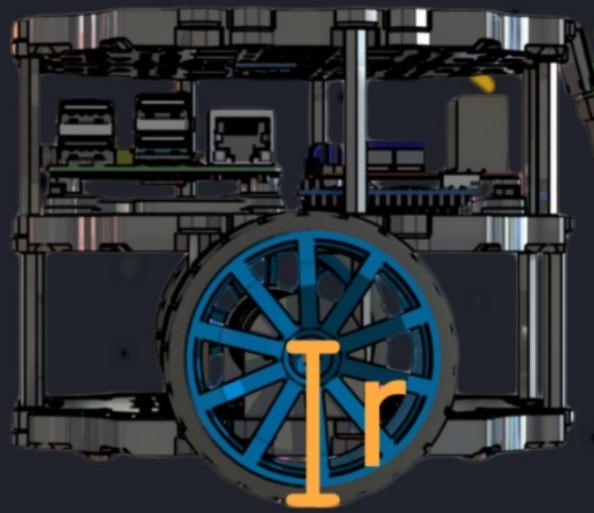


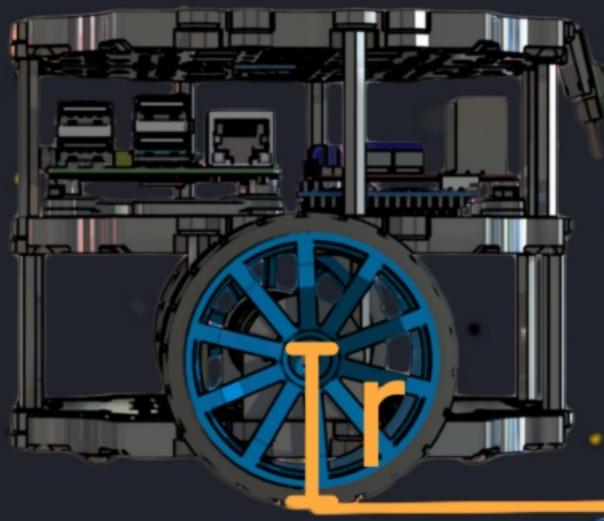
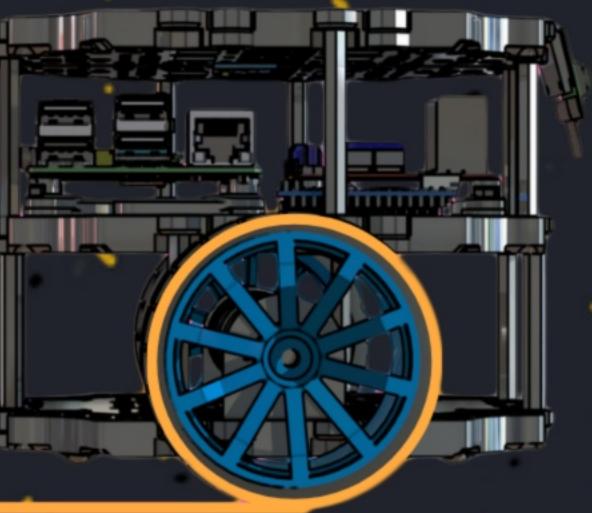
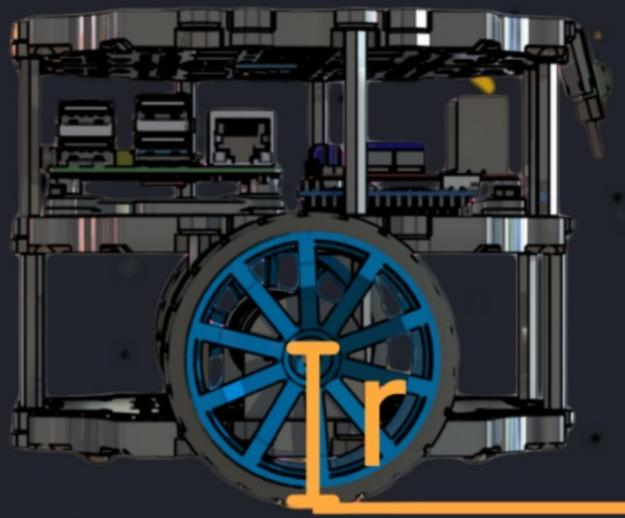
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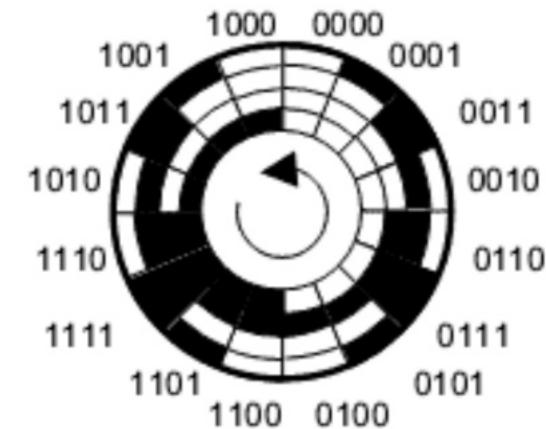
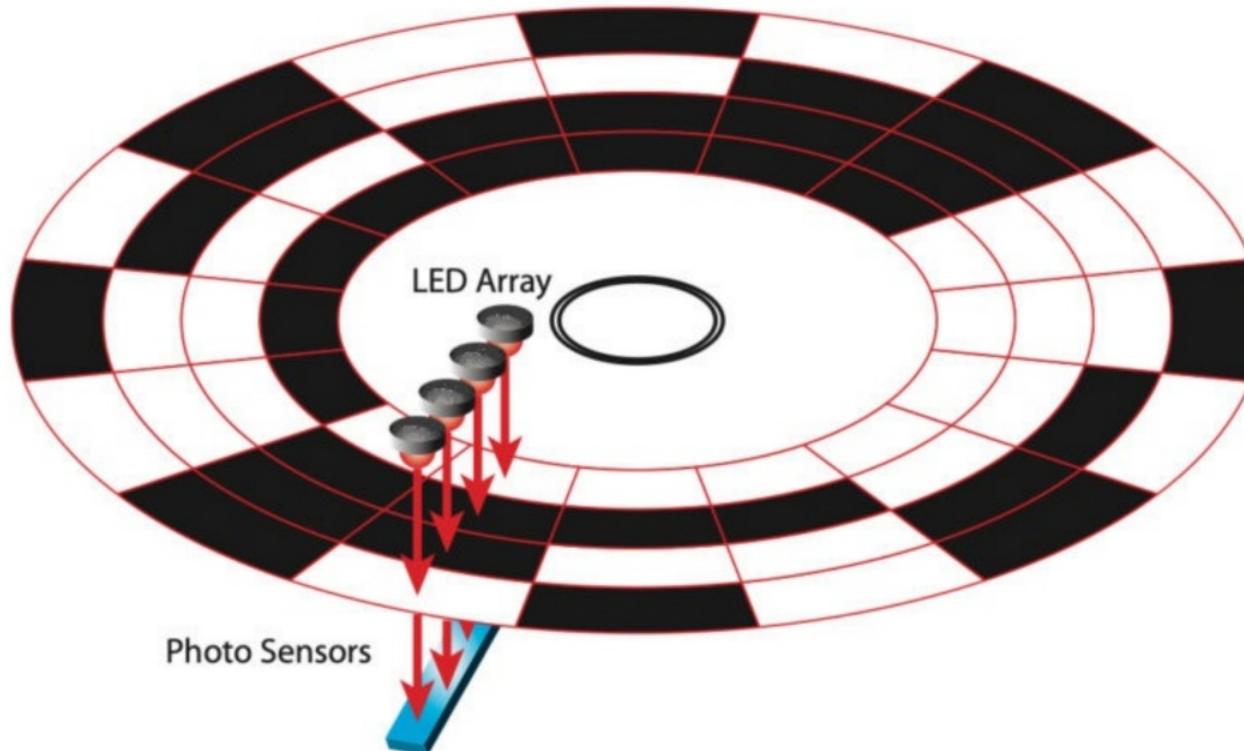
182.1m



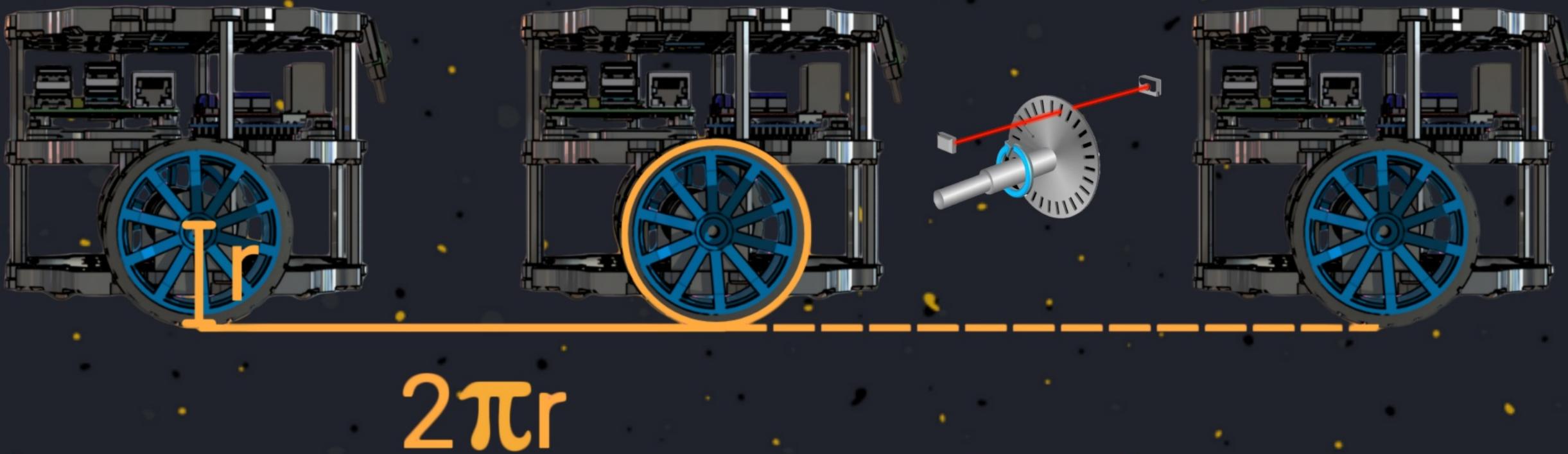




Absolute Encoder



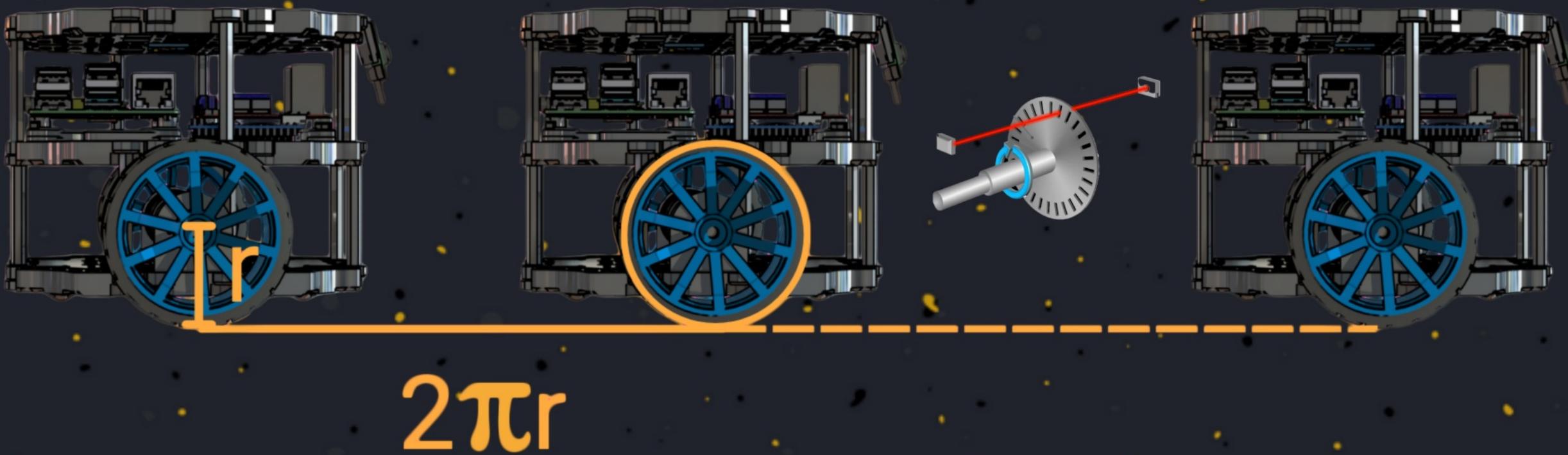
Wheel Odometry

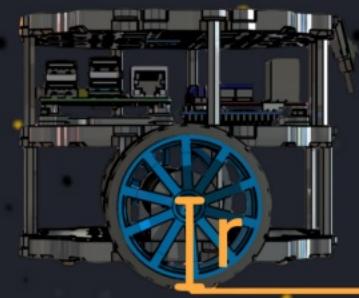




Video Ipad Here

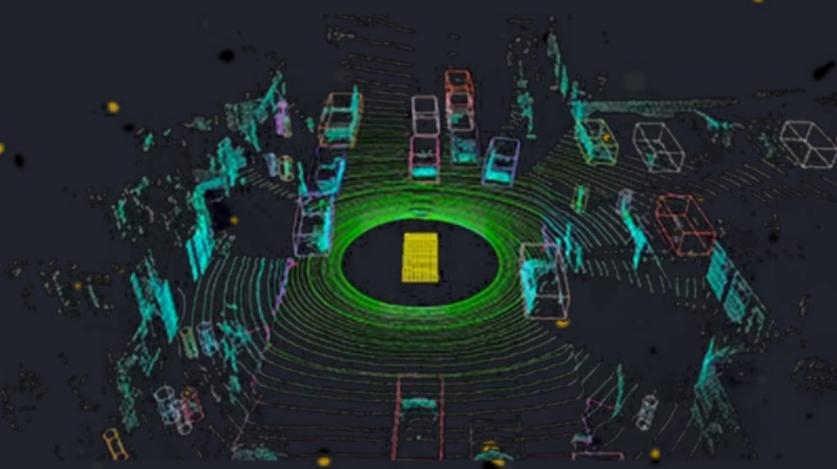
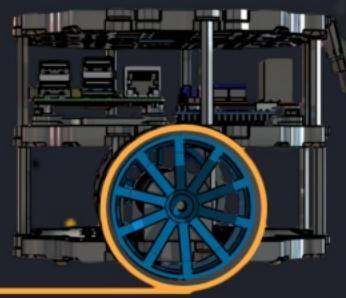
Wheel Odometry



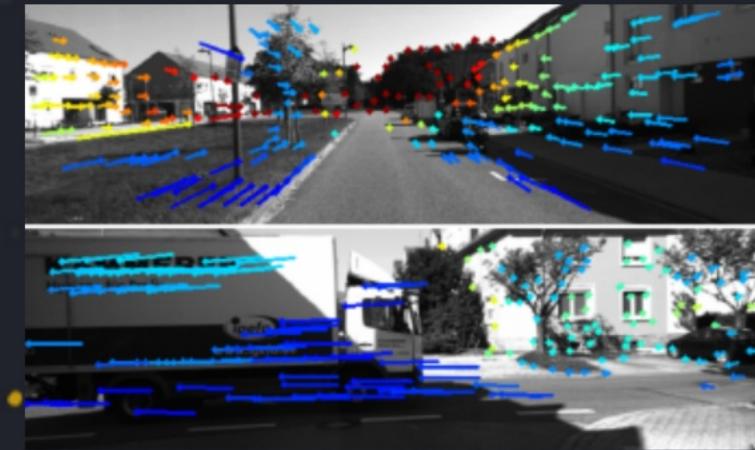


$$2\pi r$$

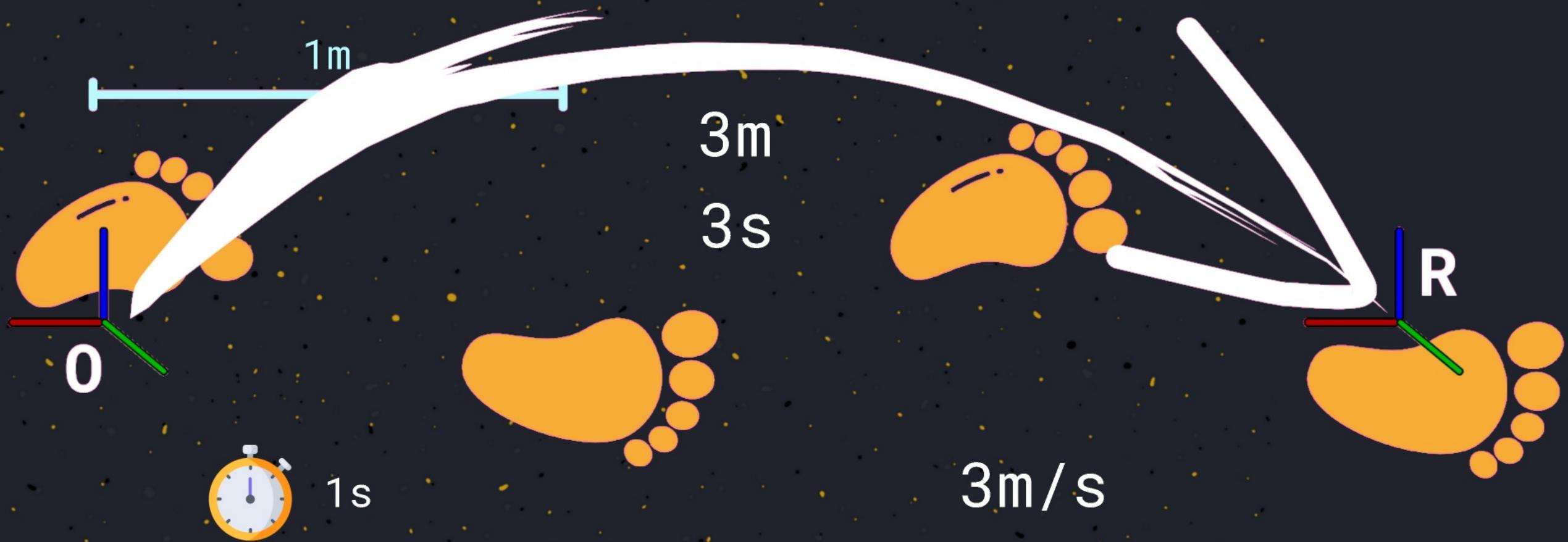
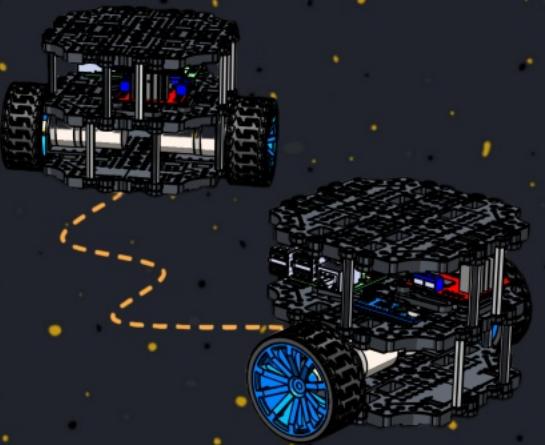
Wheel Odometry



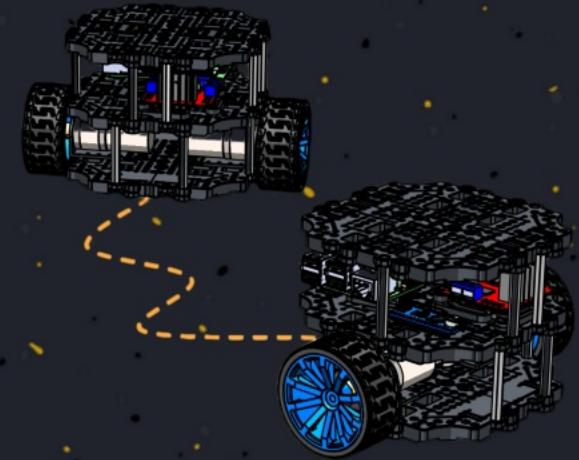
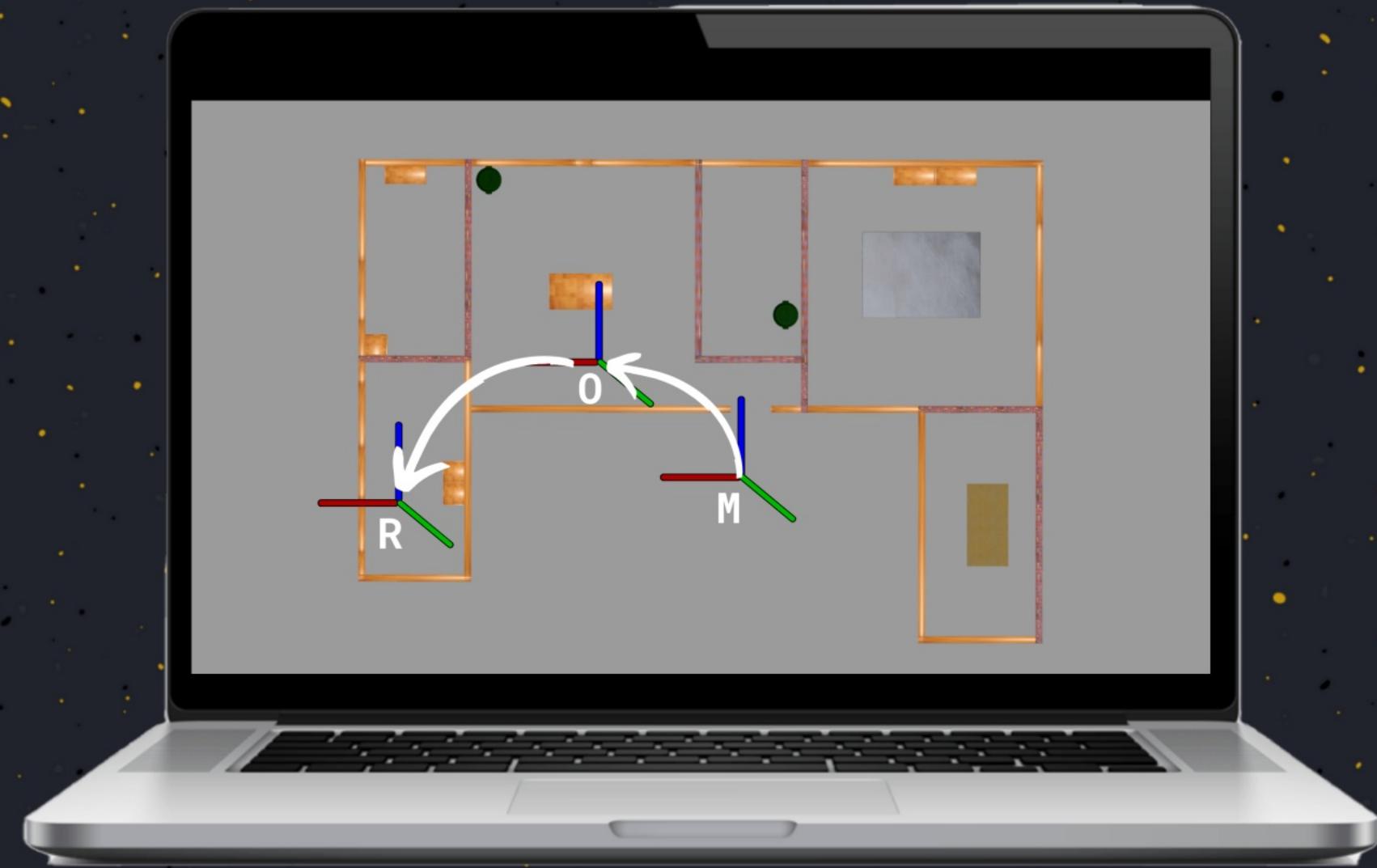
Laser Odometry



Visual Odometry



Odometry



Local Localization



Global Localization