



Robots don't mind pesticides

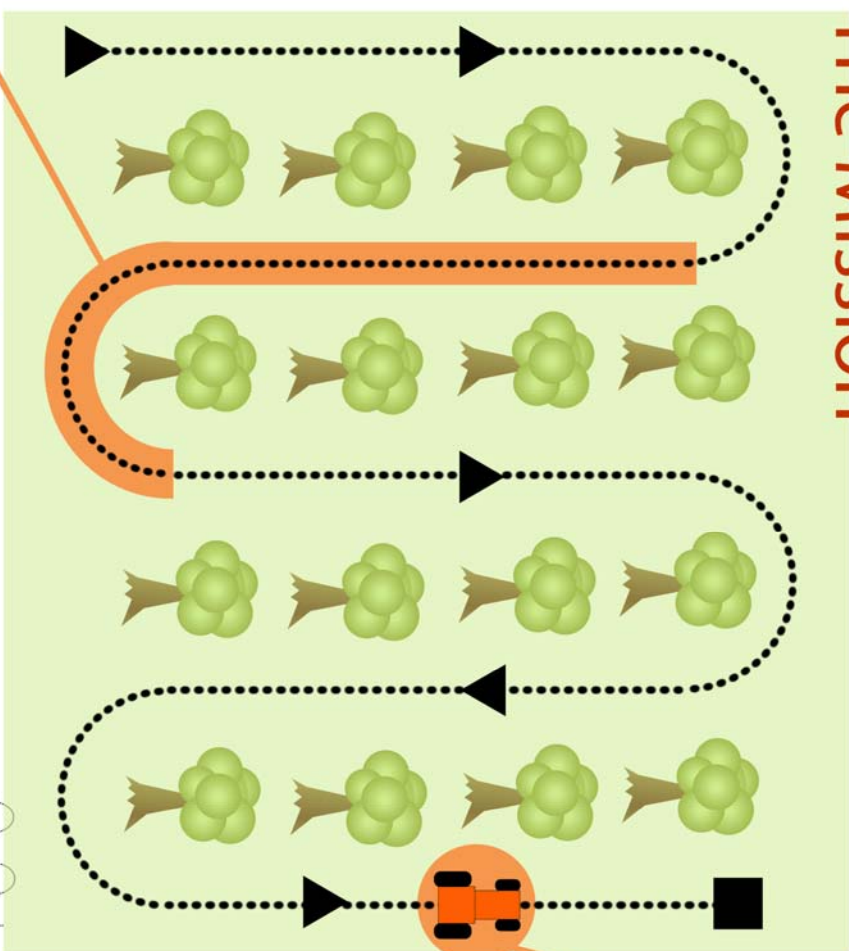
SCOPE
Senior Consulting
Program In Engineering

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The Motivation

Spraying pesticides throughout an orchard is dangerous, dirty, and dull
Solution: create an autonomous tractor to do the spraying instead

The Mission



Tractor Path

pre-programmed path of waypoints through orchard
future: waypoints created on-the-fly

Tractor Controls

using closed-loop motor commands



velocity



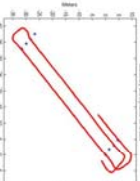
steering

Tractor Location



GPS: global navigation

status:



Very precise
Very expensive

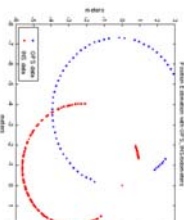
future:

phase out
replace with inexpensive GPS



Odometers and INS
distance and inertial navigation

status:



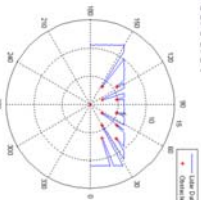
future:

tweak constants
move INS out from surrounding metal



LIDAR: obstacle avoidance

status:



future:

use for lane center and
orchard navigation

Implementation

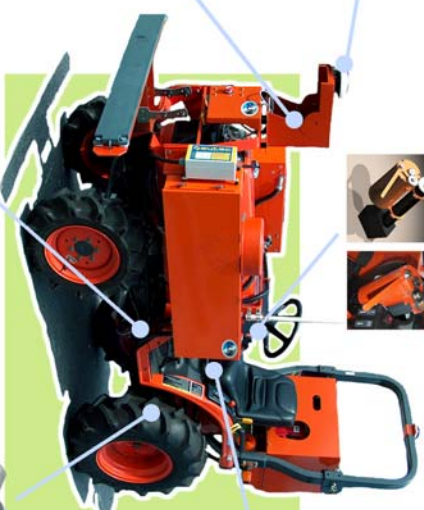
steering



GPS



LIDAR



INS

odometers



velocity control