

# Control Algorithms for Mobile Robots

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Funding:  
NSF





# Outline

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- Project Overview
- Applications
- System Design
- Algorithm Design
- Future Goals
- Acknowledgements



# Develop Software to Navigate Mobile Robots

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- Complete understanding of the robot including its hardware and inner workings.
- Create a control algorithm that incorporates sonar and video based off of older models.



# Applications

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- Operations in dangerous environments, self-guided wheelchairs, mail distribution among indoor offices.
- CCEC tests control algorithms using mobile robots and investigates relationship between control systems and communication networks.



# What is Kimberly?

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## General Information:

Two wheel drive

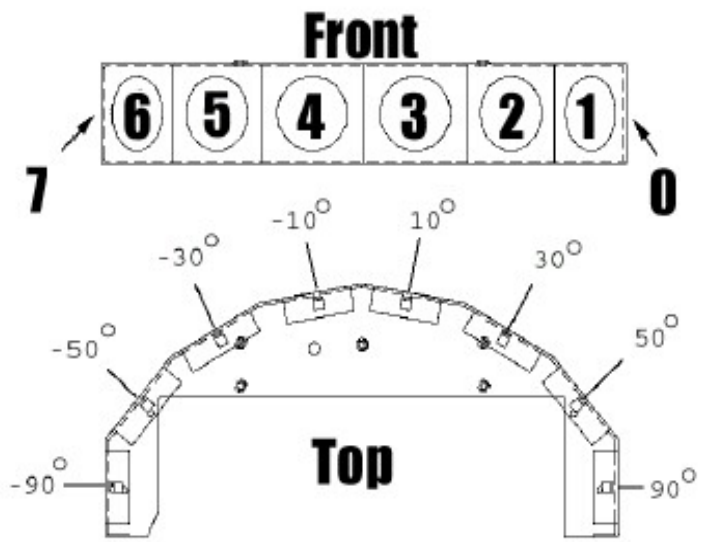
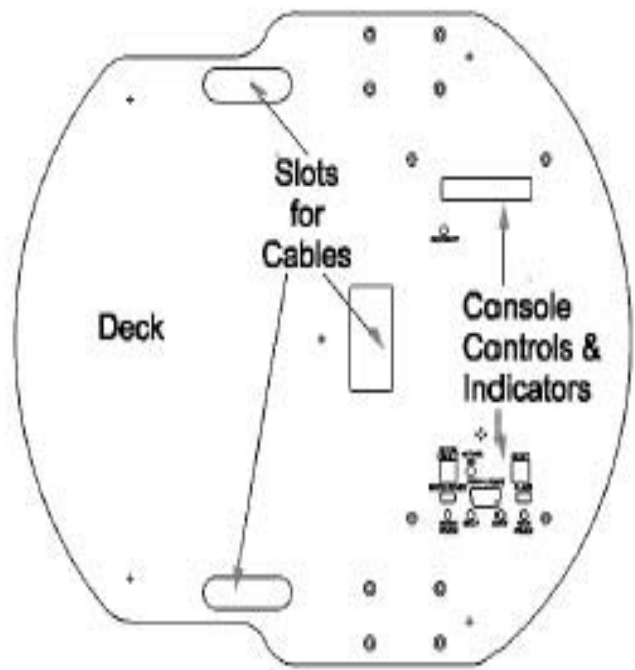
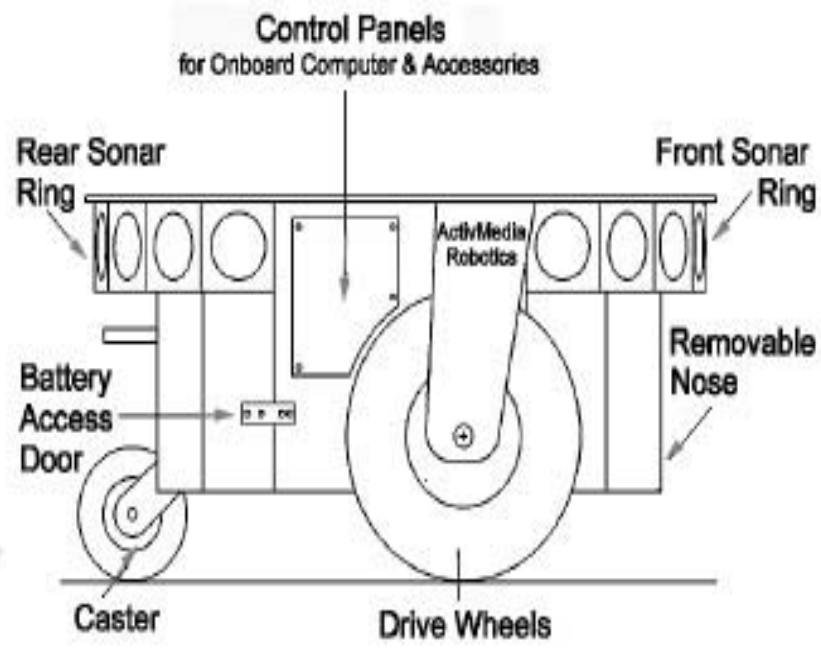
1.6 m/sec Max translate speed

20 Kg Max payload

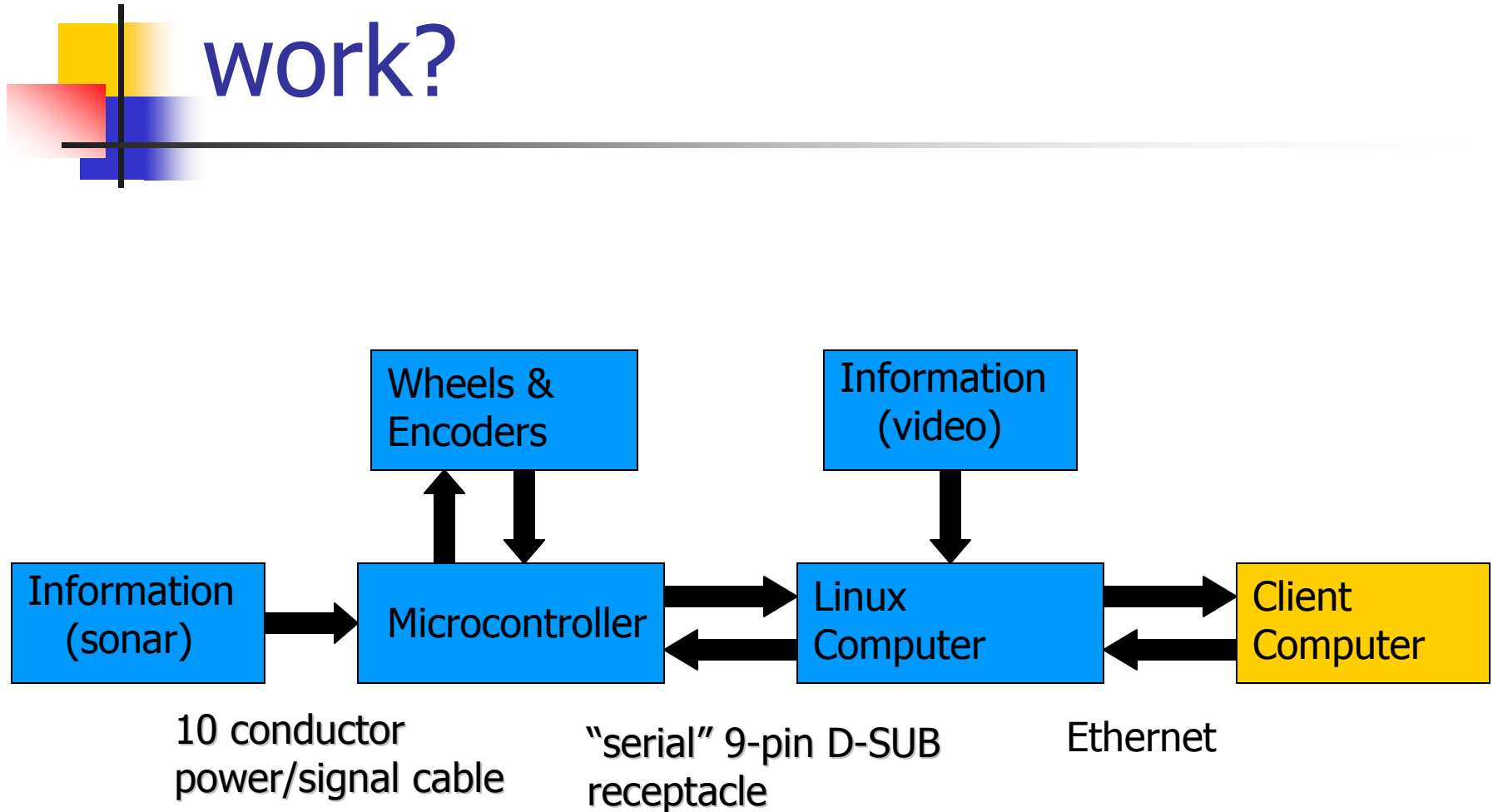
8 range finders (sonar)

Mounted PTZ Sony EVI – D30

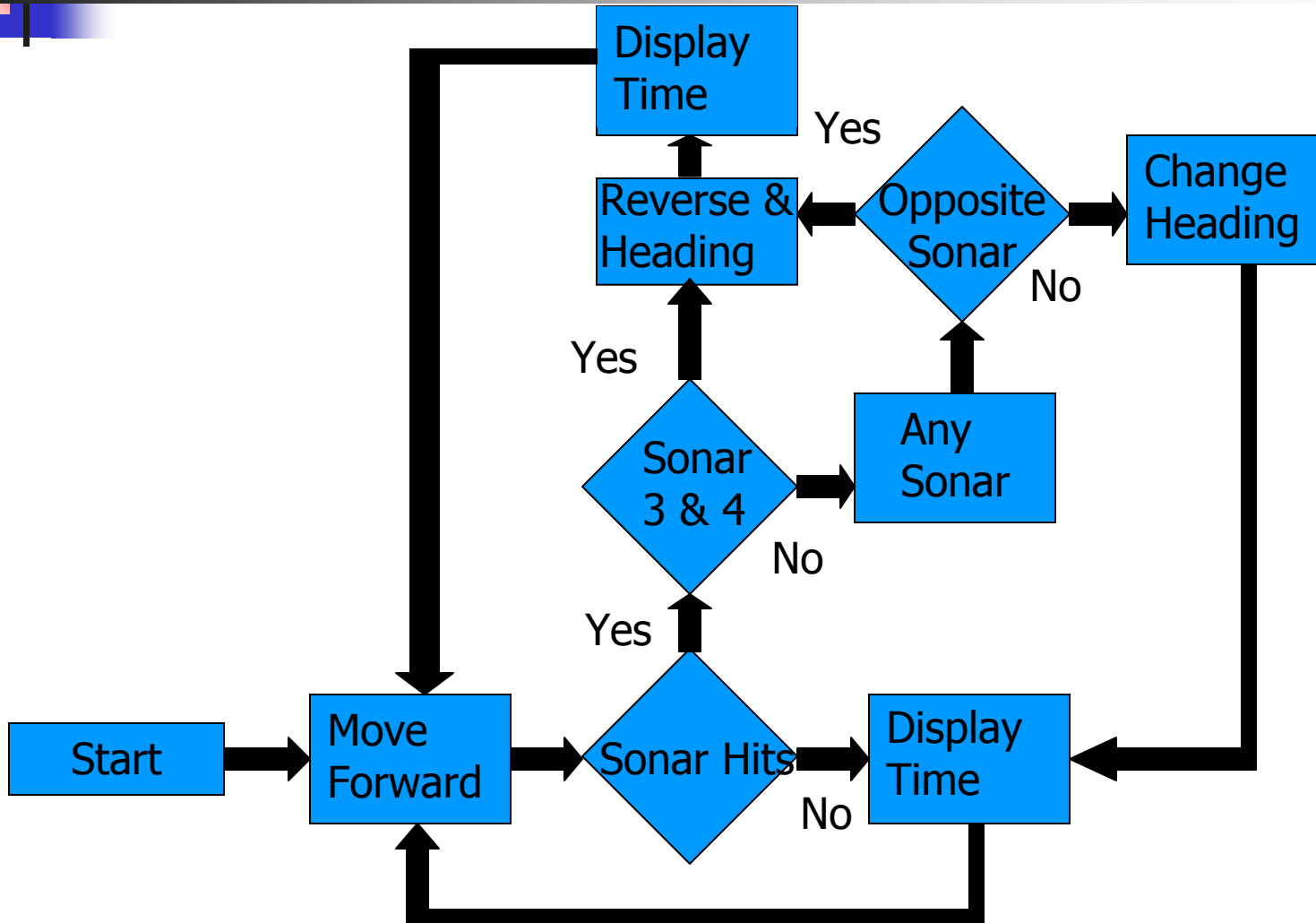




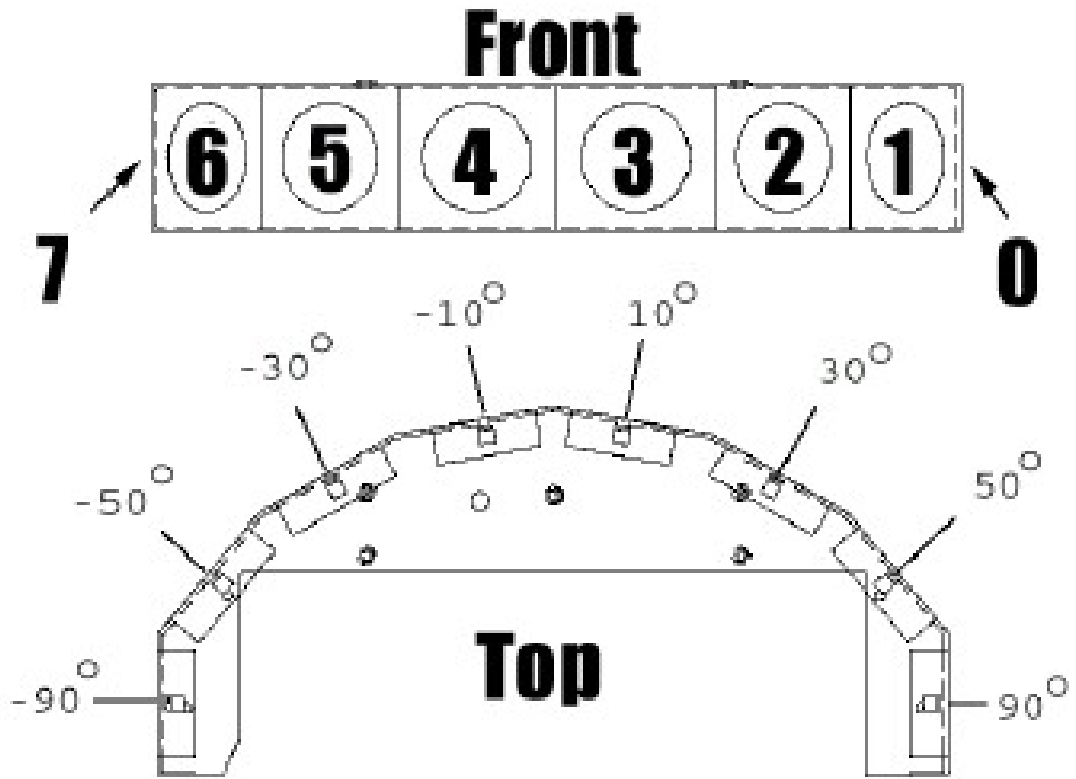
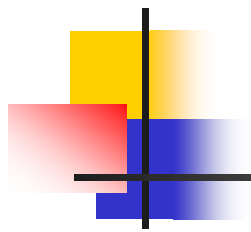
# How exactly does Kimberly work?



# Sonar Algorithm







# Vision Algorithm

Salim, Fuentes, Munoz

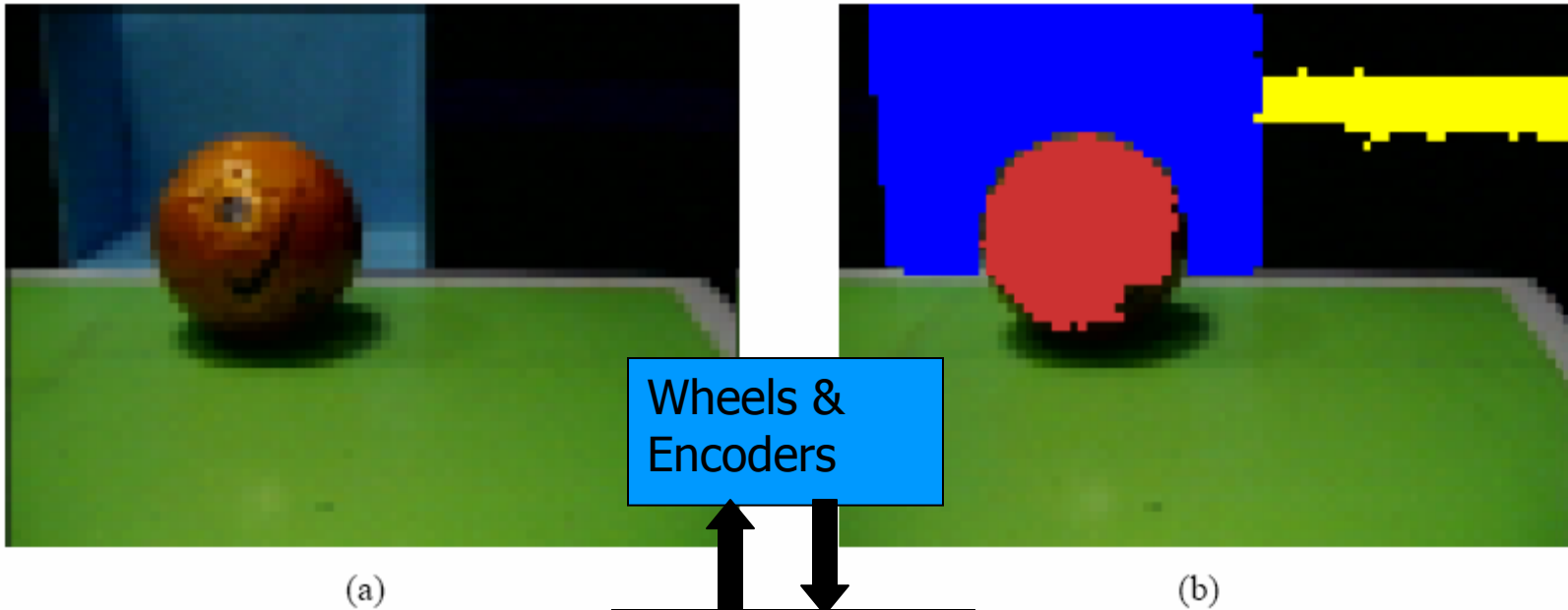
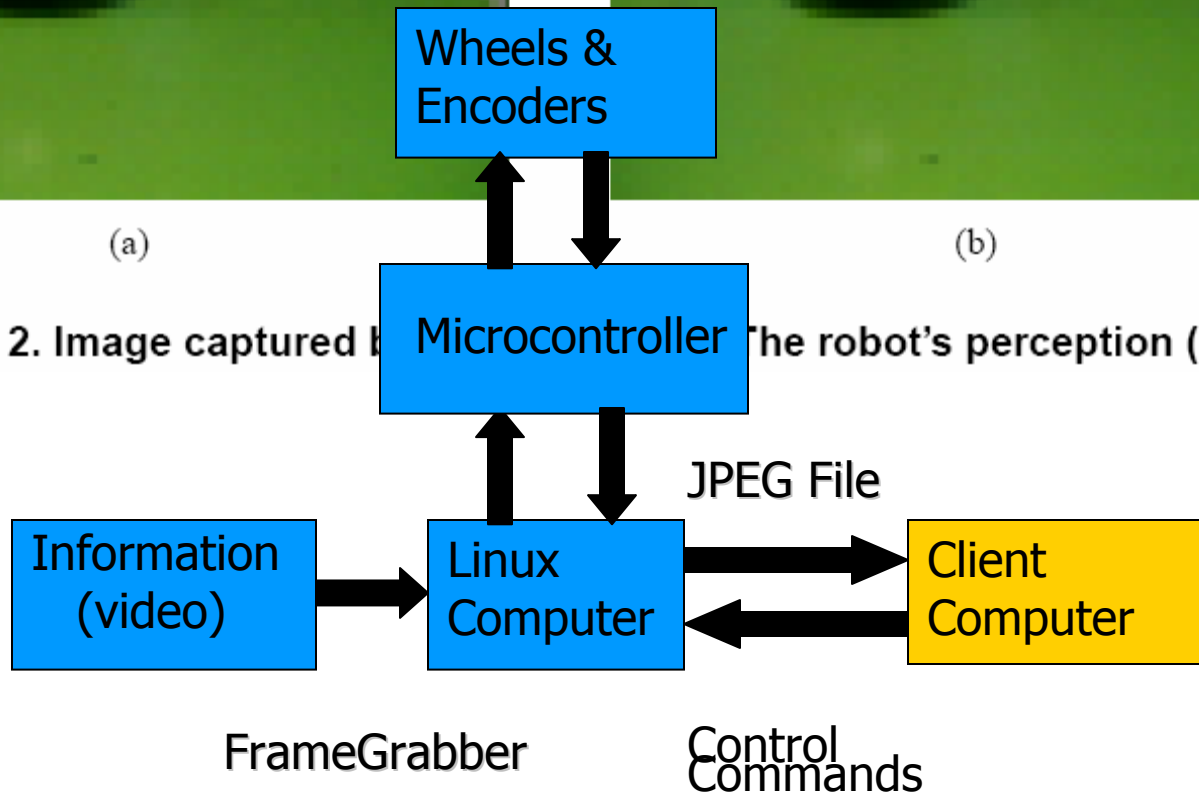


Figure 2. Image captured by the camera (a) and the robot's perception (b).





# Future Goals

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- Vision control algorithm.
- Combination of sonar and vision controls.
- Decreasing the processing time of each image.



# Acknowledgements

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- The whole Control and Identification lab crew.
- INSET
- Zeb Dahl & Matt LaFary