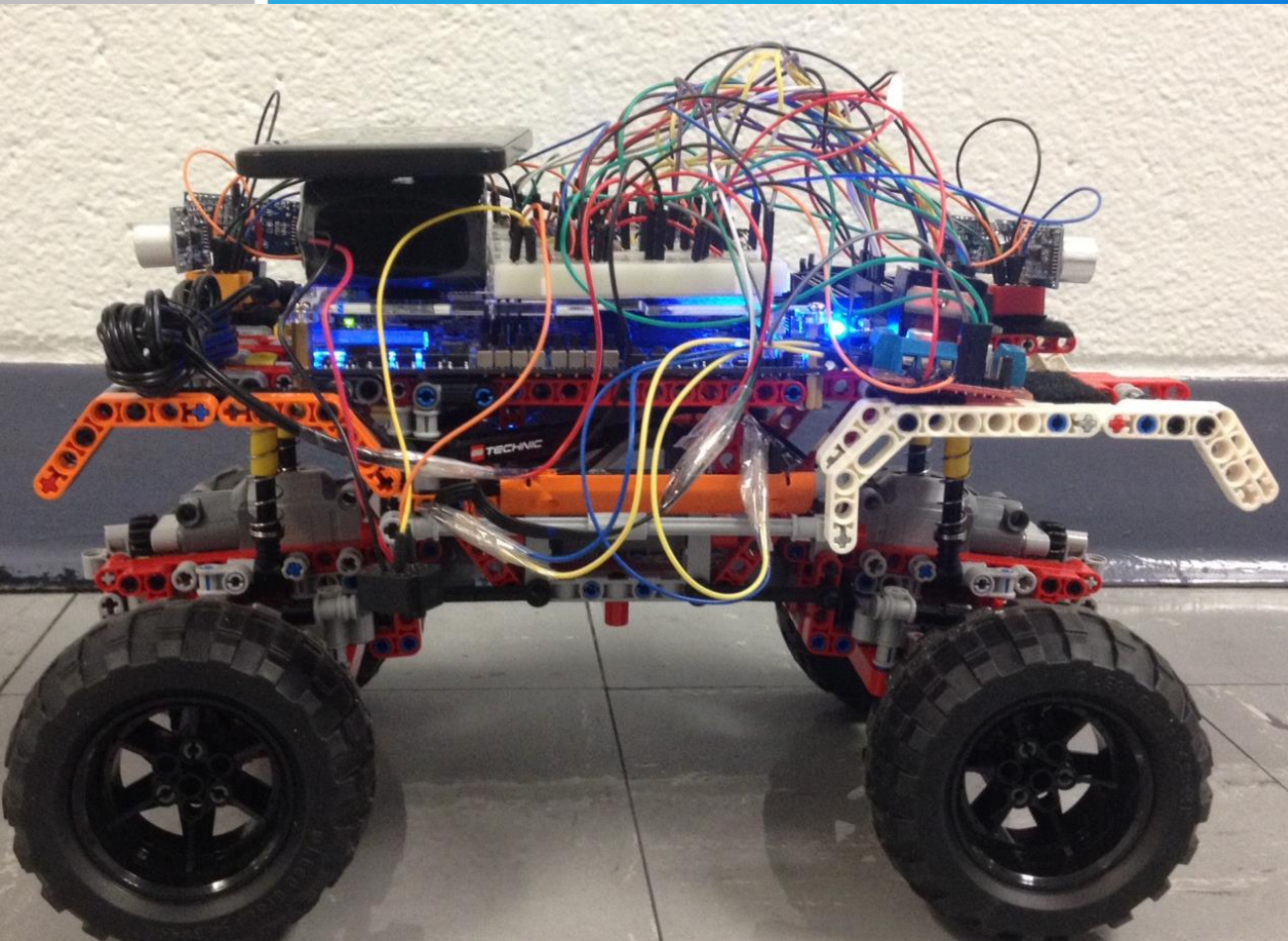


# Parking Maid

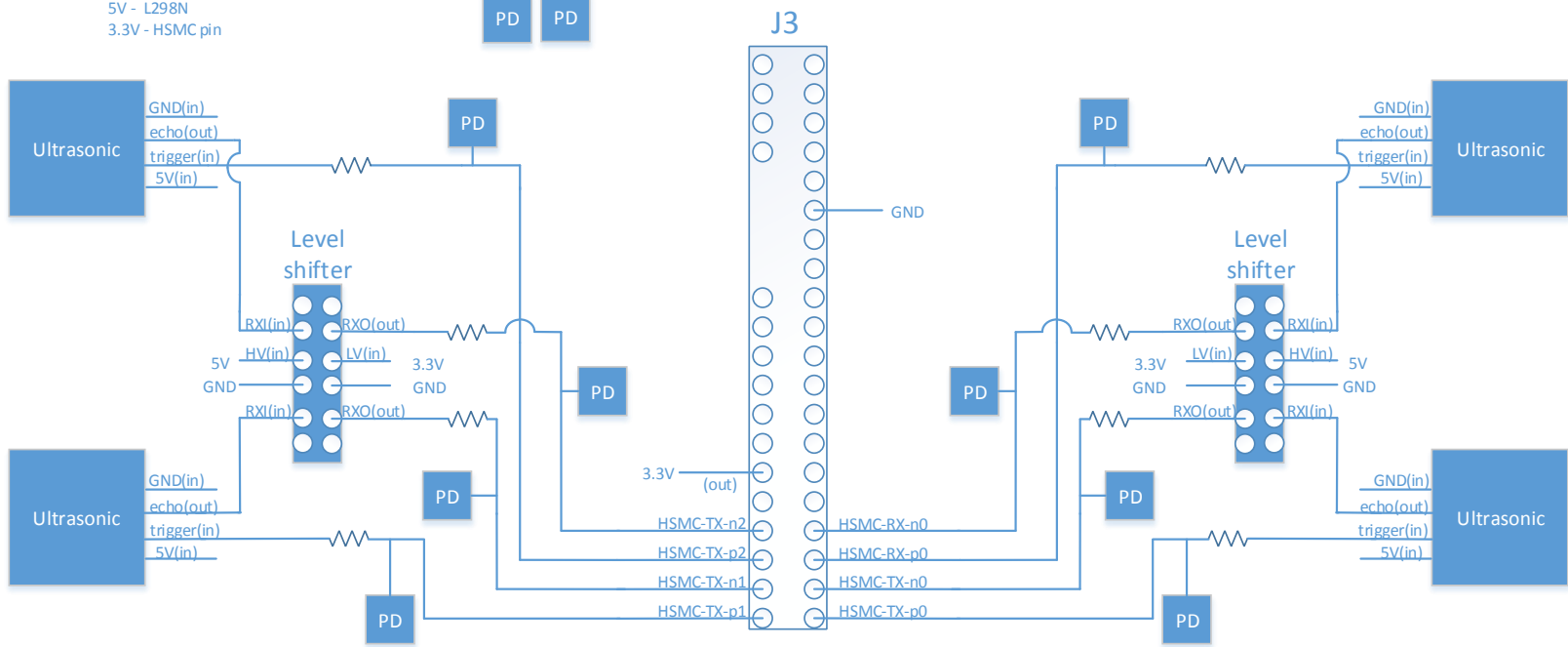
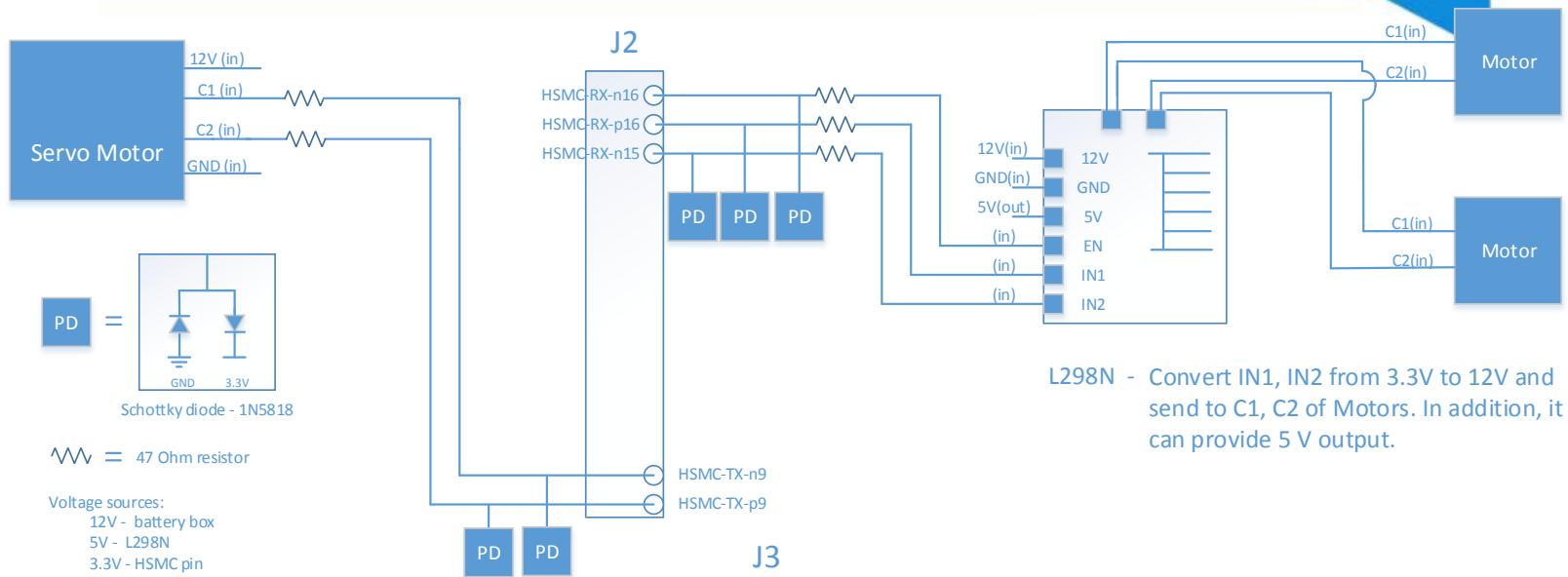


Po-Yen Chou  
Ruoqing Fu  
Hao-YuHsieh

# Overview and Objectives

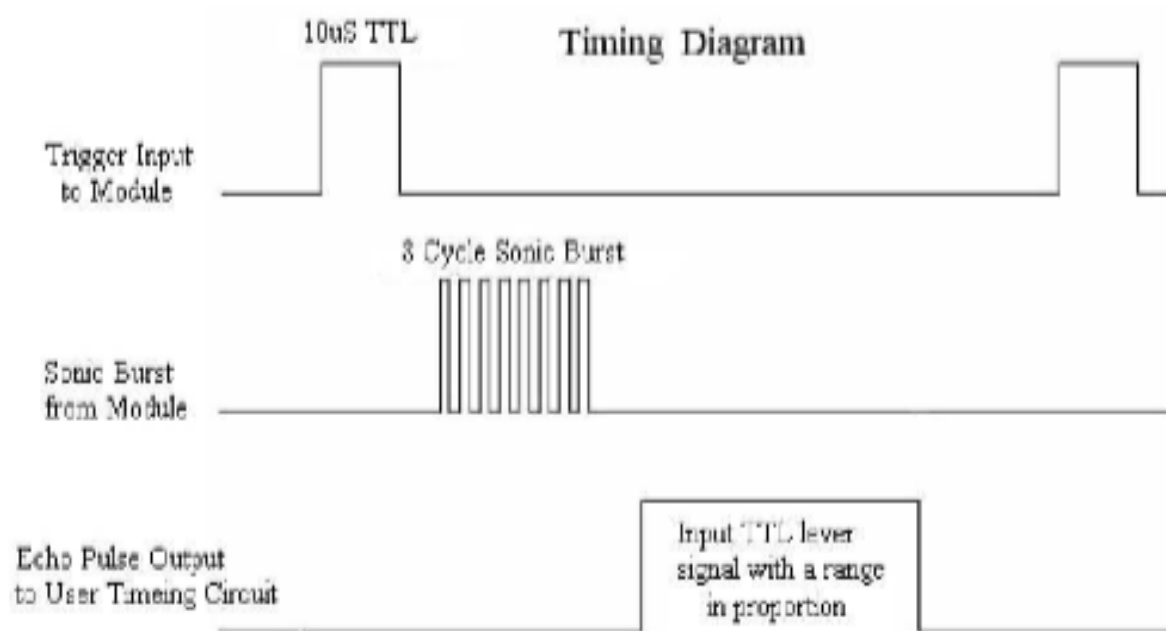
- To design a smart parking robot that can detect empty parking space and park into the area automatically with FPGA control
- **Functions that Robot can perform**
  - Move forward and backward
  - Make turns
  - Parallel Parking
  - Garage Parking
  - Automatic Trace Adjustment

# Hardware Design Architecture

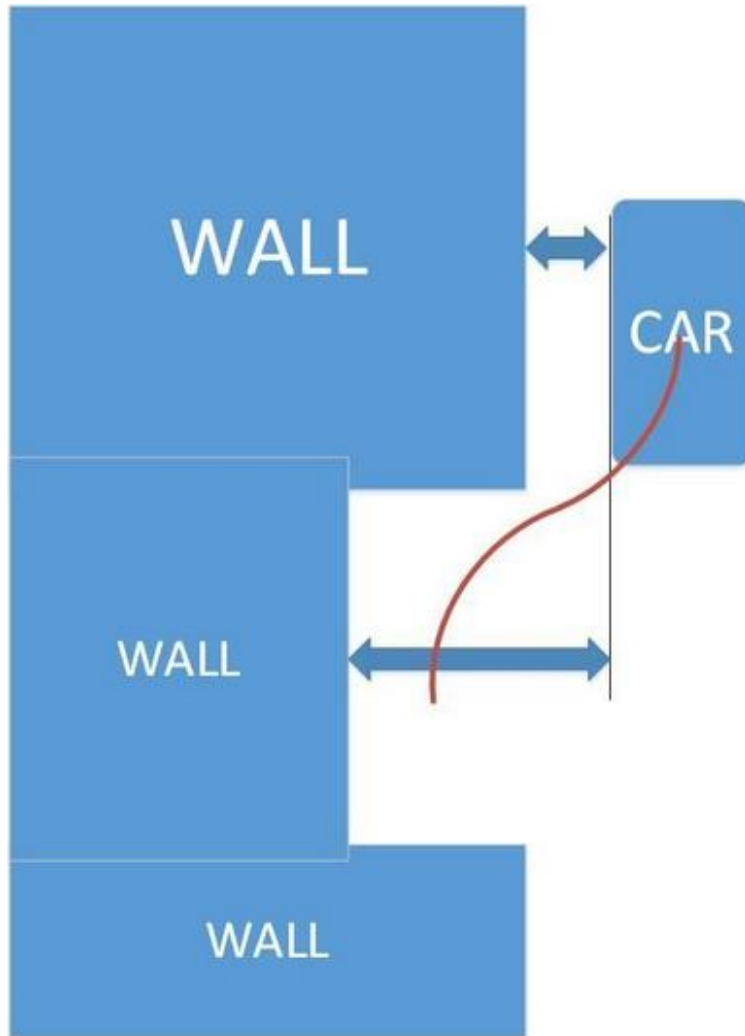


- Ultrasonic Modules
- Regular and Servo Motors
- FPGA daughter card
- Voltage Converters

- Ultrasonic



# Software Implementation Physics Model



Parallel Parking

Distance Tracking

Two identical trace curve paths

Position Calculation

# Experiences and Issues

- Hardware Failure
- SD Card
- Wireless Card
- Ultrasonic Accuracy
- Ultrasonic Positioning

- Add protection to all the critical pins
- Power Management
- Parking Algorithm Design
- Operating System Issues



# Acknowledgements

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TA Qiushi Ding