Gesture Control Car

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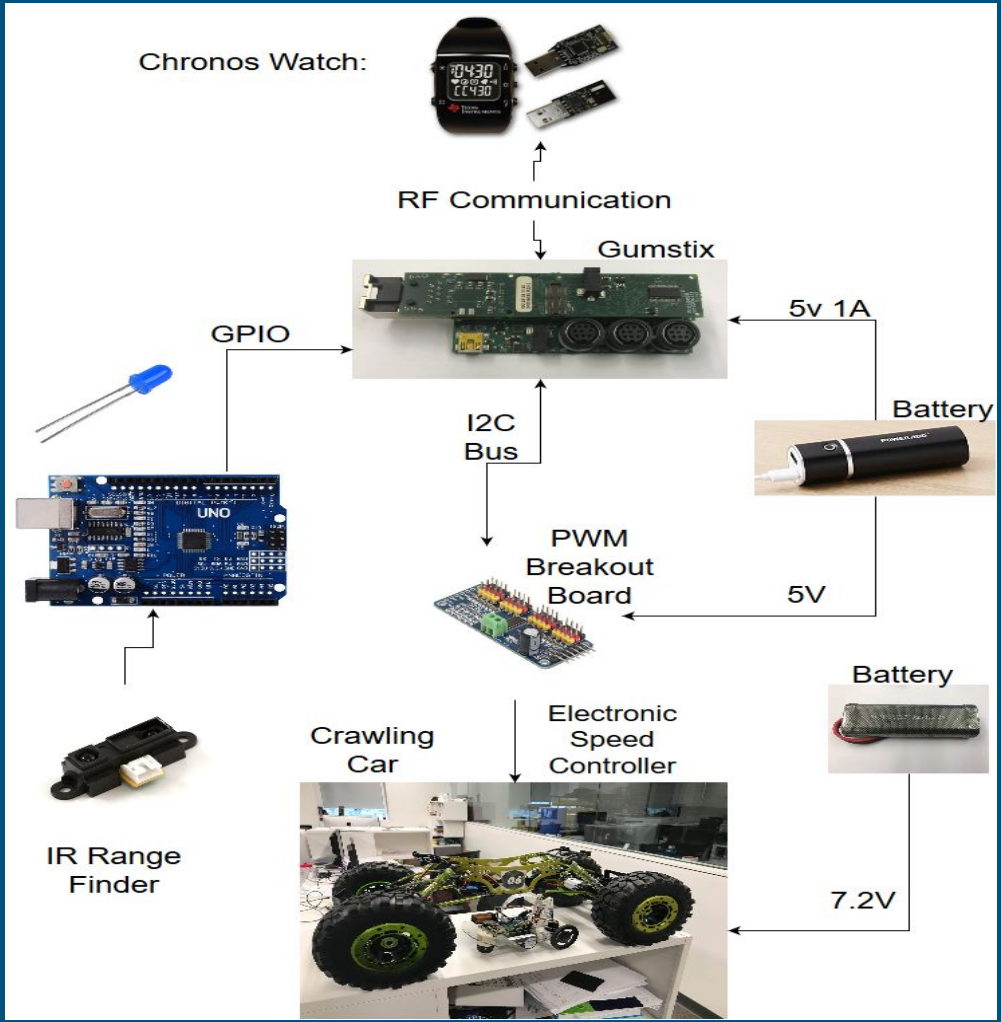
Project Description:

- Gesture Controlled Car with obstacle detection
  - Purpose - Search and Rescue Mission .

- Gesture input from 3-Axis Accelerometer in the TI Chronos Watch

- Used IR Proximity sensor for obstacle detection

Dataflow:


Chronos Watch:
RF Communication
Gumstix
5v 1A
GPIO
Battery
I2C
Bus
UNO
PWM
Breakout
Board
5V
Battery
Crawling
Car
Electronic
Speed
Controller
IR Range
Finder
7.2V

Software Architect

User Level Program:

- Based on the data from the Chronos Watch and IR sensor, the Gumstix sends I2C commands to the PWM breakout board to control the PWM servo signal

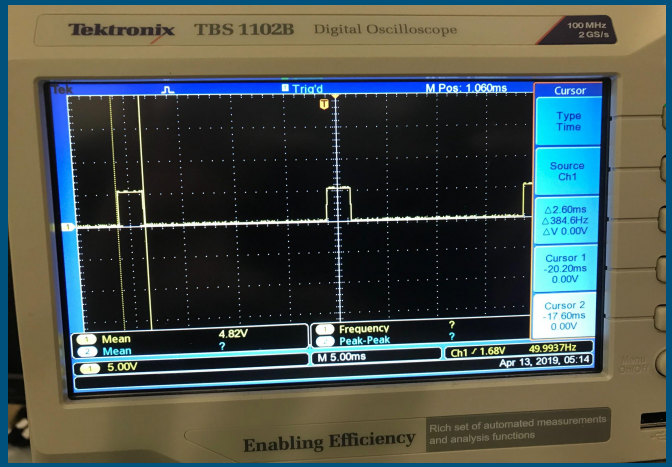
Kernel Module:

- Outputs the level of the Gumstix GPIO 101 that is connected to the Arduino's "obstacle detection" pin (pin 2)

Arduino Program:

- Polls IR sensor value and sets pin 2 high if an obstacle is within ~33cm

Overall Experience



- Challenges
  - Figuring the correct PWM signal
  - I2C configuration with Gumstix Board
  - IR Range Finder communication with Gumstix Board.

- Learning Outcome
  - Controlling a small scale car using hand gesture
  - I2c communication for Servo and ESC control
  - System integration