Autonomous Trail Rescue Rover

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Overview

- An autonomous rover to provide emergency assistance
- Device will patrol hiking trails and will stop to assist hikers
- Rover will also communicate with a base station to send data back to base
- Hikers can interact with rover via answering questions on display screen

Project Goals

Fall 2020

- Week 6: Build communications backend + audio user interface
- Week 8: Building Chassis
- Week 10: Have a moving rover that can communicate to base

Winter 2021

- Implement obstacle detection and human interaction onto the moving rover

Design

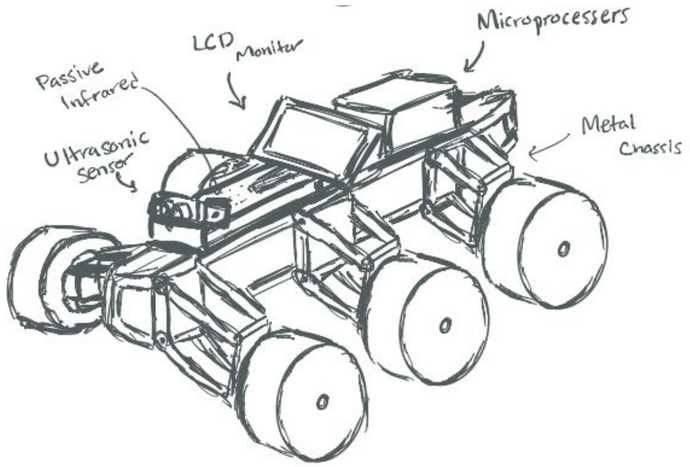

Fig 1: A simple projected design prototype of the rover. Six wheels reduce the weight load on each motor. Ultrasonic sensor provides distance sensing. PIS sensor provides heat movement.

Materials

- Arduino/Raspberry Pi
- DC Motor
- Battery
- Rover Chassis
- HC-SR04 Ultrasonic Sensors
- Passive Infrared Sensors

Background

- Hikers have a chance of getting injured and immobilized on trail (0.56 injuries/1000 hours)
- In the case of injury, the time to get paramedic help or park ranger's attention is too long (7.2 hours)

References

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