Mobilized Construction

Midway presentation
Niels & Troels

Problem

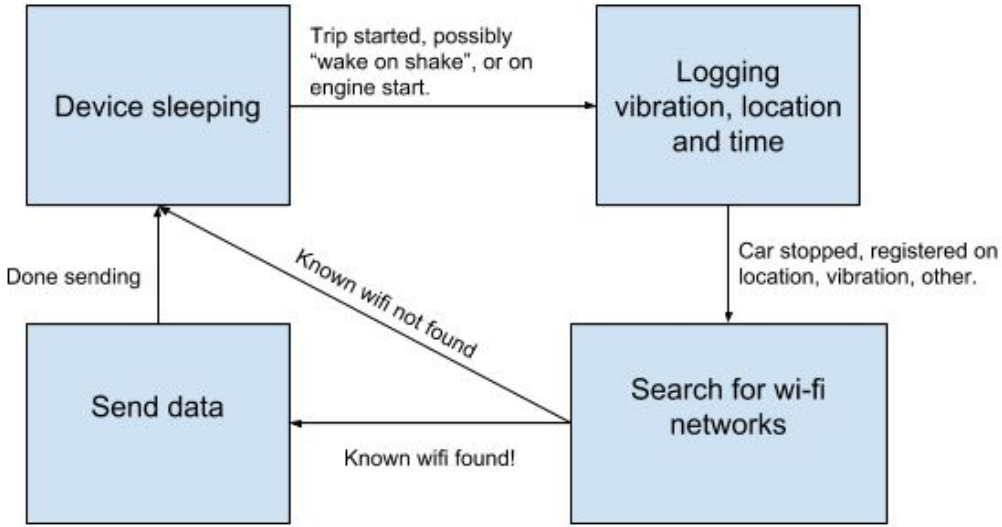
To be able to asses the state of roads using cheap IoT devices in lieu of expensive, heavy equipment.

Approach

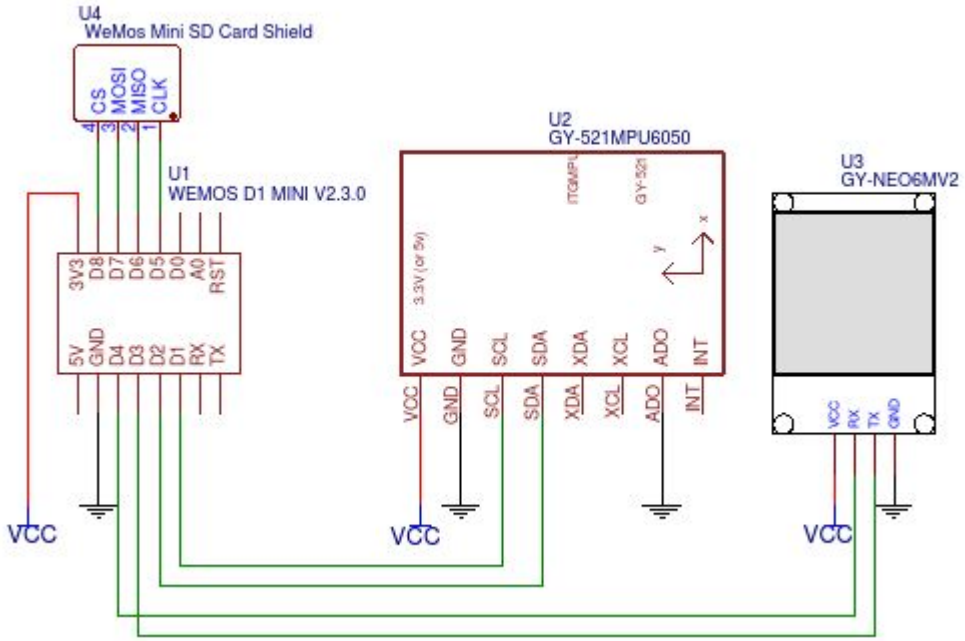
We will create a small IoT device with accelerometer and GPS to track data.

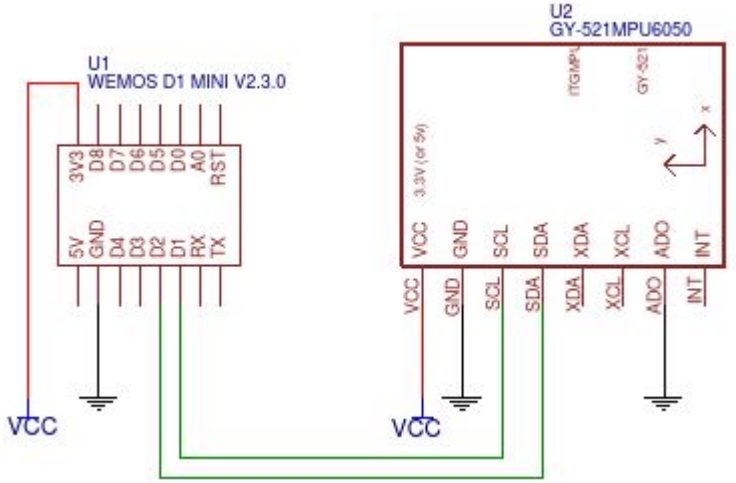
Data will be stored on SD card and sent to remote server when WiFi is available.

A second unit will only use WiFi and accelerometer to expose a second data reading to be consumed by the main unit.



Design


U4
WeMos Mini SD Card Shield
CS
MOSI
MISO
CLK
U1
WEMOS D1 MINI V2.3.0
3V3
D8
D7
D6
D5
D0
A0
RST
5V
GND
D4
D3
D2
D1
RX
TX
U2
GY-521MPU6050
ITG/MPU
GY-521
3.3V (or 5V)
VCC
GND
SCL
SDA
XDA
XCL
ADO
INT
U3
GY-NEO6MV2
VCC
RX
TX
GND
VCC


U1
WEMOS D1 MINI V2.3.0
3V3
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D5
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A0
RST
5V
GND
D4
D3
D2
D1
RX
TX
U2
GY-521MPU6050
ITG/MPU
GY-521
3.3V (or 5V)
VCC
GND
SCL
SDA
XDA
XCL
ADO
INT
VCC
VCC

Implementation status

Main unit

- Collecting accelerometer and GPS data.
- Storing data on SD card.
- Sending data to remote wifi.

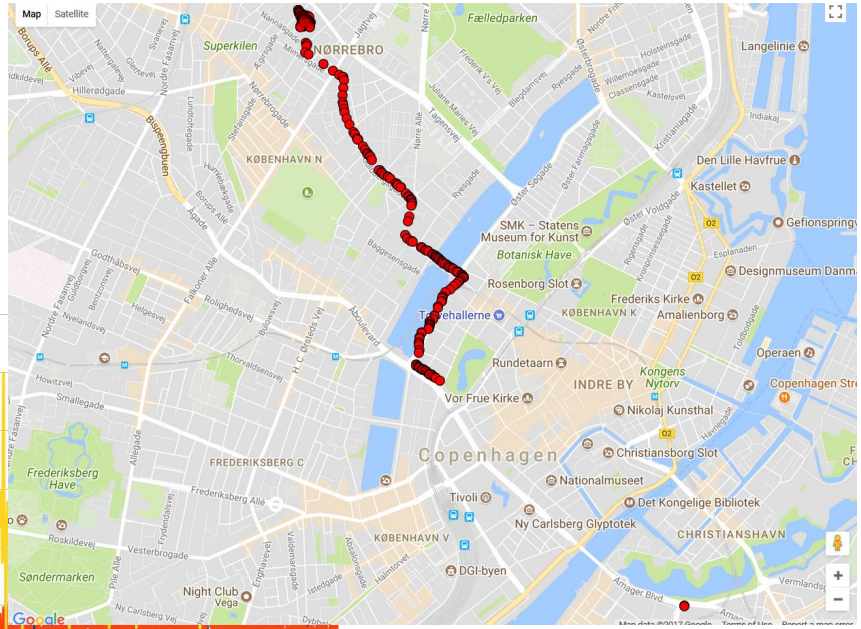
TBD

- Read additional data from Node unit

Node unit

- Collecting accelerometer data.
- Exposing data to local web clients.

Experiments, first results



Obstacles

- (Only one working GPS.)
- Slow data transfer on WiFi.
- Deleting data from SD card once sent → Works now.

Todo

- Battery for node unit.
- Main unit read from node unit.