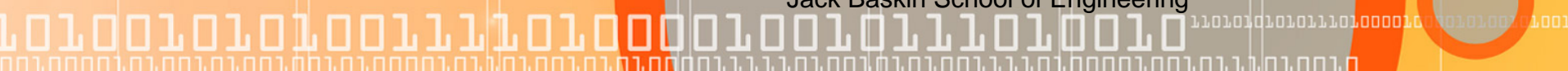




- Shawn Bohonos
  - Computer Engineering, Multimedia
- Alex Lee
  - Computer Engineering, Networks
- Amir Malik
  - Computer Engineering, Multimedia
- Chung Thai
  - Electrical Engineering, Communications



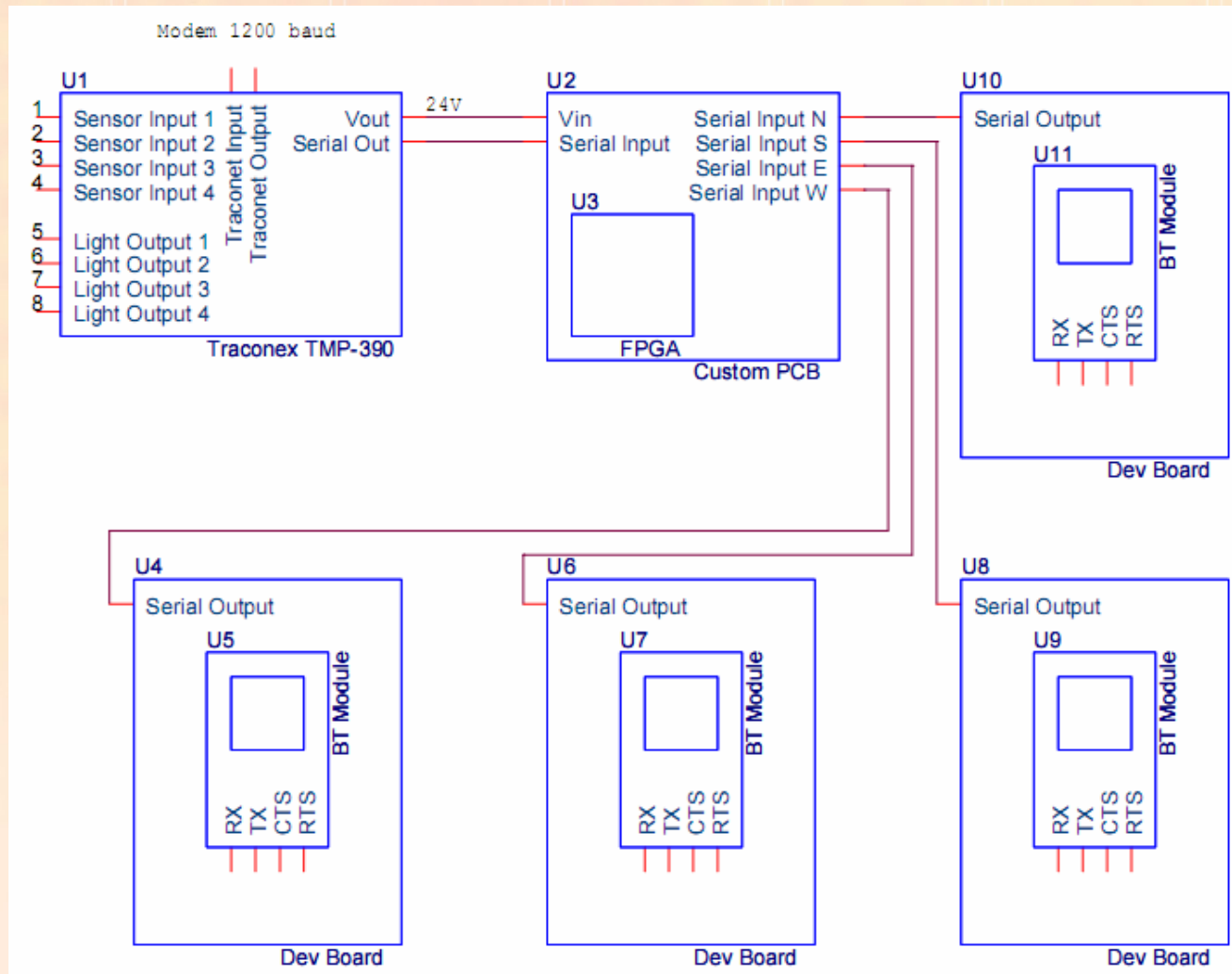
- Originally proposed by Roberto Manduchi: *“Design and prototype a small Bluetooth transmitter that can be used to broadcast information to anyone carrying a Bluetooth cell phone.”*
- *“Transmitters could be embedded in critical locations, such as at a bus stop, at a traffic intersection, or near a building entrance, in order to provide useful information to visually impaired (as well as sighted) individuals.”*



- Internal codename: *URNA* (Universal Resource Navigational Assistance)
- Hardware
  - FPGA
    - One Bluetooth module per crosswalk
    - Serial or Ethernet interface to traffic signal controller
- Mobile phone software (“PedNav”)
  - Audio-based user interface
  - Visual cues in UI, for those who are partially blind



# System Architecture

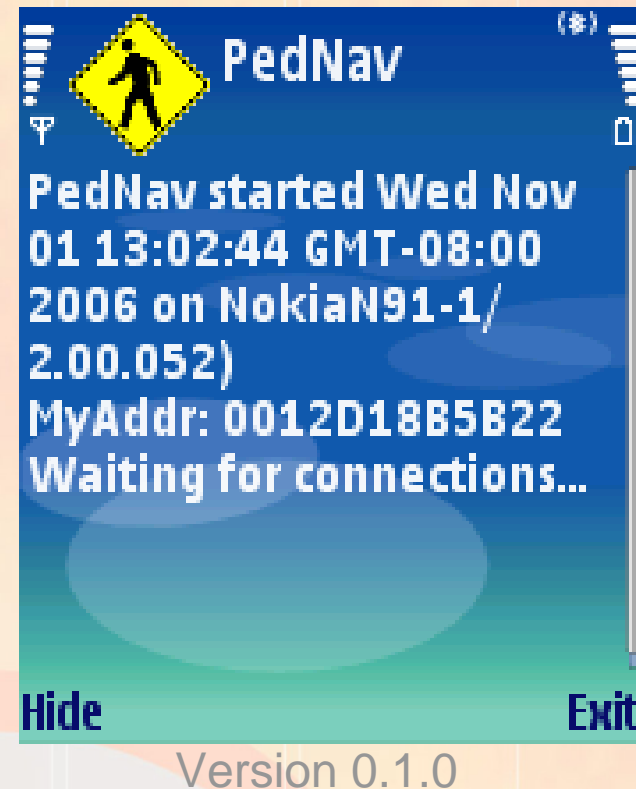


- Traffic Light Transponder
  - City of San Jose is willing to help us procure a traffic controller for development use
  - Priced Bluetooth development kits & modules
  - Need to kindly ask Cyrus for an FPGA dev board
- Mobile Phone
  - In the process of acquiring a phone for testing
  - Software under development

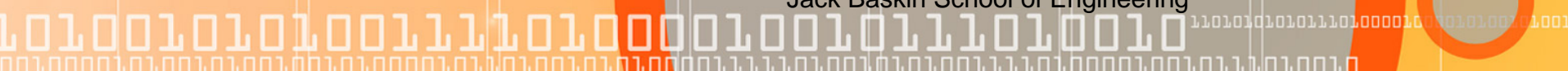


# User Interface

- Written in Java 2 Micro Edition
- Just enable Bluetooth and go – no need to pair with any device
- Security will be handled by the software, not Bluetooth
- Information relayed using audio alerts through speakers/headset
- Simple to use
  - Install PedNav
  - Start PedNav
  - Walk around



- Hardware
  - Obtain all dev boards and Bluetooth modules
  - Bluetooth communication on FPGA dev board
    - Transmit “Hello, world!” to phone
- Software
  - Finalize OTA serial communications protocol
  - Complete networking layer for PedNav
    - Text transmission
    - Audio file transmission & playback
    - Streaming audio playback (time permitting)





Visit the URNA site at <http://urna.projects.unoc.net/>



# Questions?



For more information, visit our wiki at <http://urna.projects.unoc.net/>

