MapRouting

with help of NFC

NFC Technology

- Near-field communication
- 512 bytes data
- Activity distance < 10cm
- Re-writable, Lockable tags

We are using these tags to contain brief location descriptor and geo coordinates

OpenStreetMap

Issues with Google Map

- Doesn’t allow use of own routing algorithms
- Lack of availability of map tiles for most regions

OSM Positives

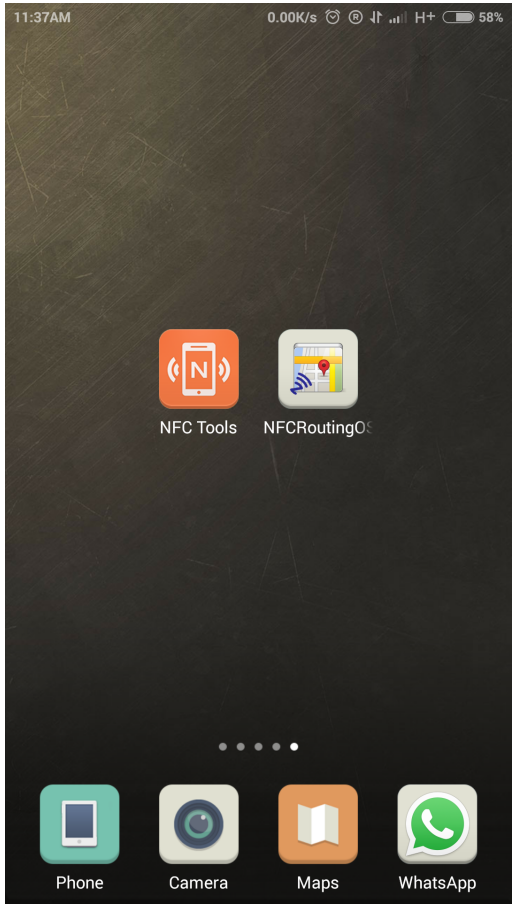
- Addition of own nodes, streets is possible
- Freedom of algorithm choice
- Availability of map tiles, XML data

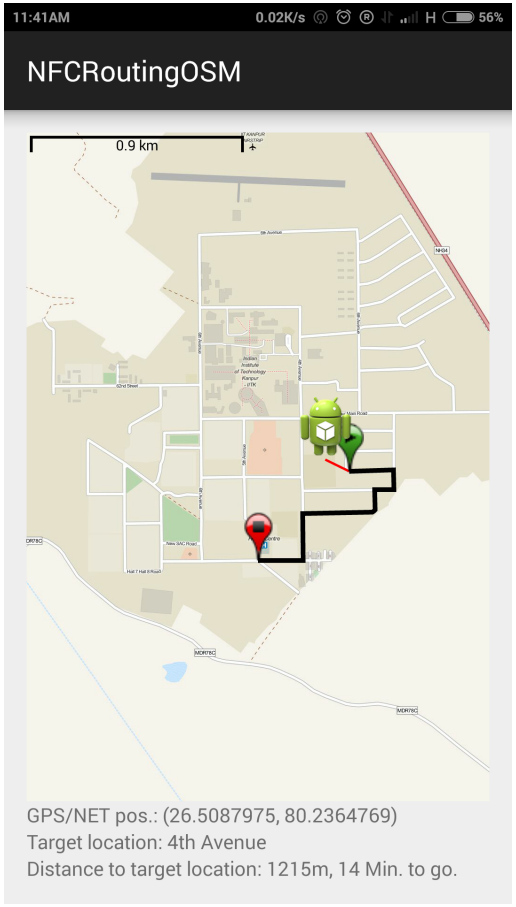
How it works?

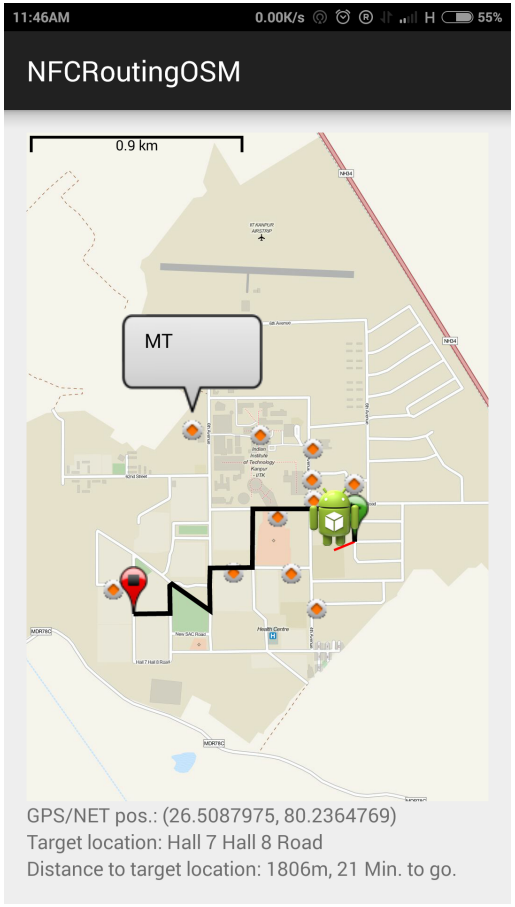
- Initial location is determined by GPS/Network/NFC whichever available
- Map data around that is fetched in XML format
- Our parser then parses it and creates a graph of nodes and ways in form of a linked list
- Target location can be selected via NFC Markers

Routing

- NFC tag can be read for nearby locations of importance
- Adds selectable markers on the map
- Route calculated using A*
- Check for route deviation every X seconds
- Re-calculation of route if deviated







App Icon Routing NFC-aided Routing

Achieved

- Map Routing both GPS based and offline (NFC based location)
- NFC Reading / Interpreting “Important” places nearby - stored on NFC tags
- Clickable target location markers on reading tags
- Map of IITK campus available offline Ability to fetch map on mobile data / wifi
- OSM Parser (Required for converting available OSM data in usable format)
- Route re-calculation on deviating from path
- Distance / Time estimates to target location