Title: **Transportation in IIT**

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Visual Communication

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IDC, IIT Bombay

PROJECT

Redesigning the user interface of the existing transportation service website of the campus.

Within the IIT Bombay Campus

WITHIN THE IIT BOMBAY CAMPUS

Scenario

Area of the campus: 2.2257 km^2
Mode of travel to commute is as follows:
Walking
Cycles
Bus services provided by the institute
Auto Rickshaws
Bus services provided by the institute
Private Vehicles - Bikes
Cars
Public transport vehicles from outside the campus

WITHIN THE IIT BOMBAY CAMPUS

Problem

Lack of organised and analysed dissemination of information regarding

Precise timings of bus services.
Accurate directions of quickest routes to various destinations.
Clear instructions to various destinations.
Local news.

WITHIN THE IIT BOMBAY CAMPUS

Solution

A digitised platform that can be accessed by the target audience which provides

Precise timings of bus services.
Accurate directions of quickest routes to various destinations.
Clear instructions to various destinations.
Dedicated social networking platform which provides immediate updates.
Local weather information.

WITHIN THE IIT BOMBAY CAMPUS

Process followed

Analysis of data that gives simplified information to the user

Calculations

Buses - Average speed, number of buses, bus routes, locating bus stops.
Cars - Average speed.
Walking - Average speed, tracing pedestrian paths.
Locations - Calculating fixed points on the map.
Routes - Calculating accurate junctions and routes of the campus.

Outside the IIT Bombay Campus

OUTSIDE THE IIT BOMBAY CAMPUS

Implementation of the project on a wider scale

Analysis of data that gives simplified information to the user

India is a developing economy witnessing rapidly growing cities.
Public transit systems are playing a major role in commute.
Eg. Monorail, Metrorail, Railways, Buses, Share Autos,
Prepaid taxis, etc.

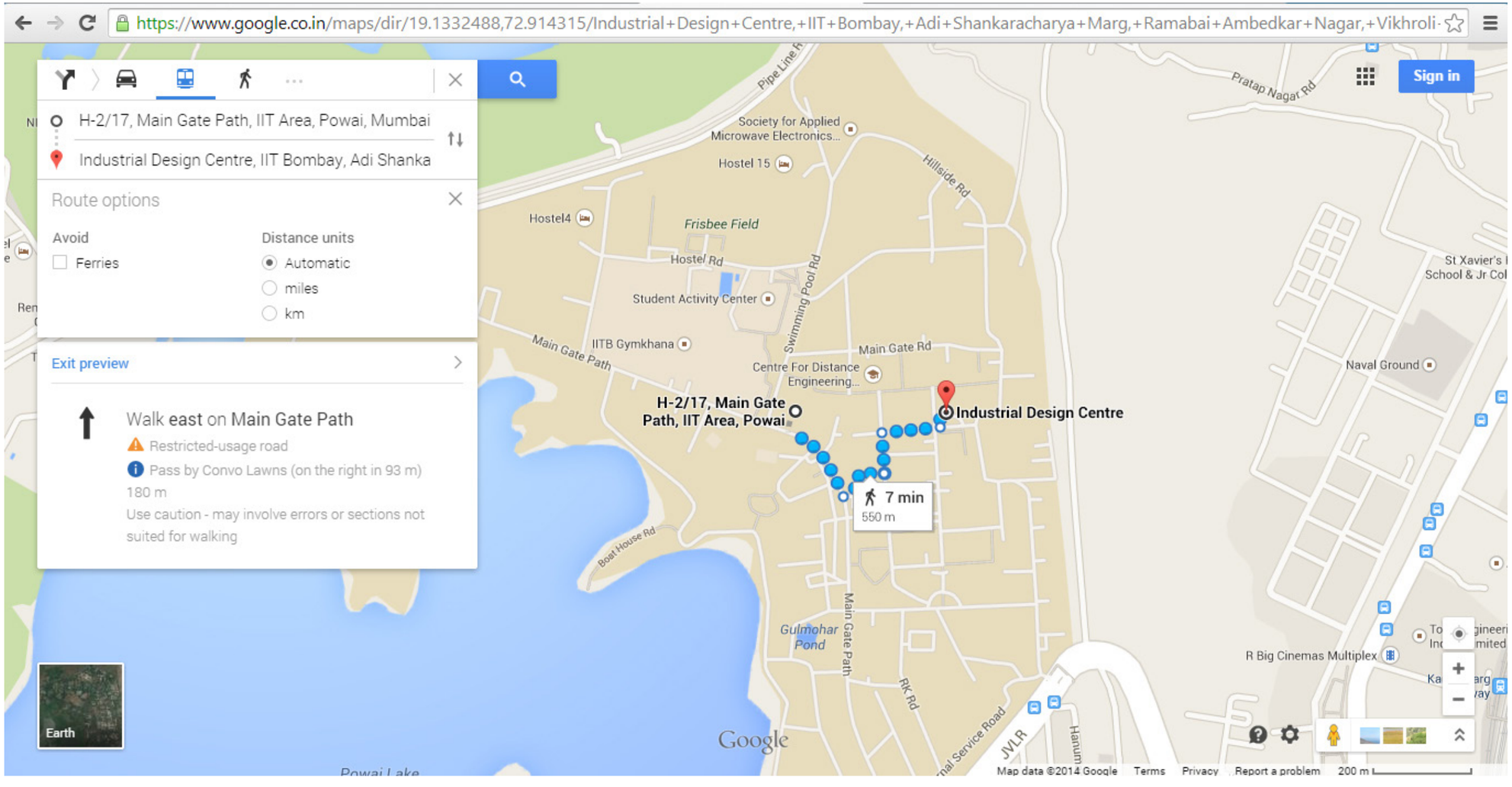
Many locations are not traced accurately in current map solutions.

Hence, the network of urban transportation systems is complex where collected data can be analysed to give accessible information to the commuters.

CASE STUDIES

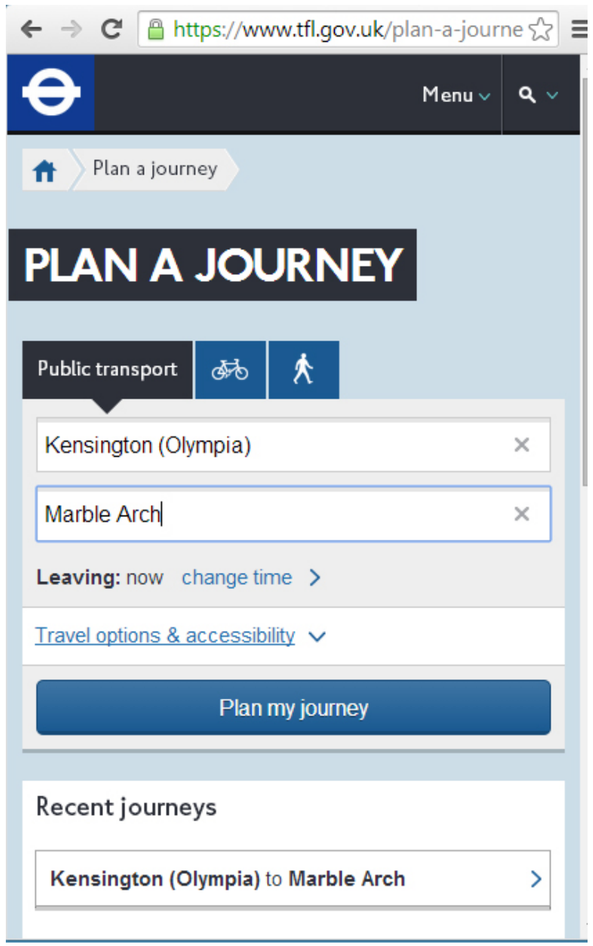
1) Google
2) Transportation for London
3) Union

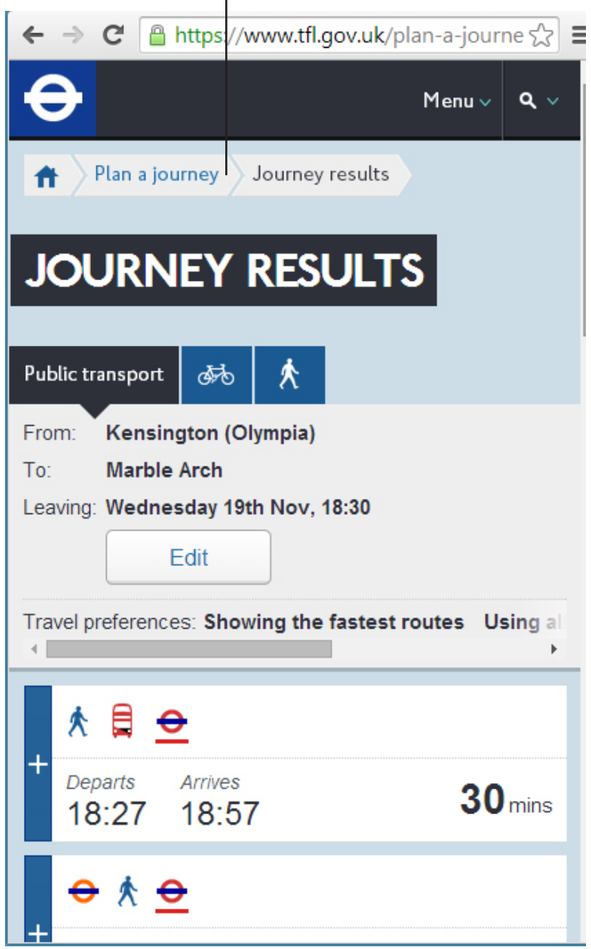
Google Google maps



Transport for London https://www.tfl.gov.uk

Breadcrumbs navigation





Highlights of the website:

Responsive web design principles

Responsive type

Fluid inline images

Responsive layouts

Responsive navigation

Responsive menu bars

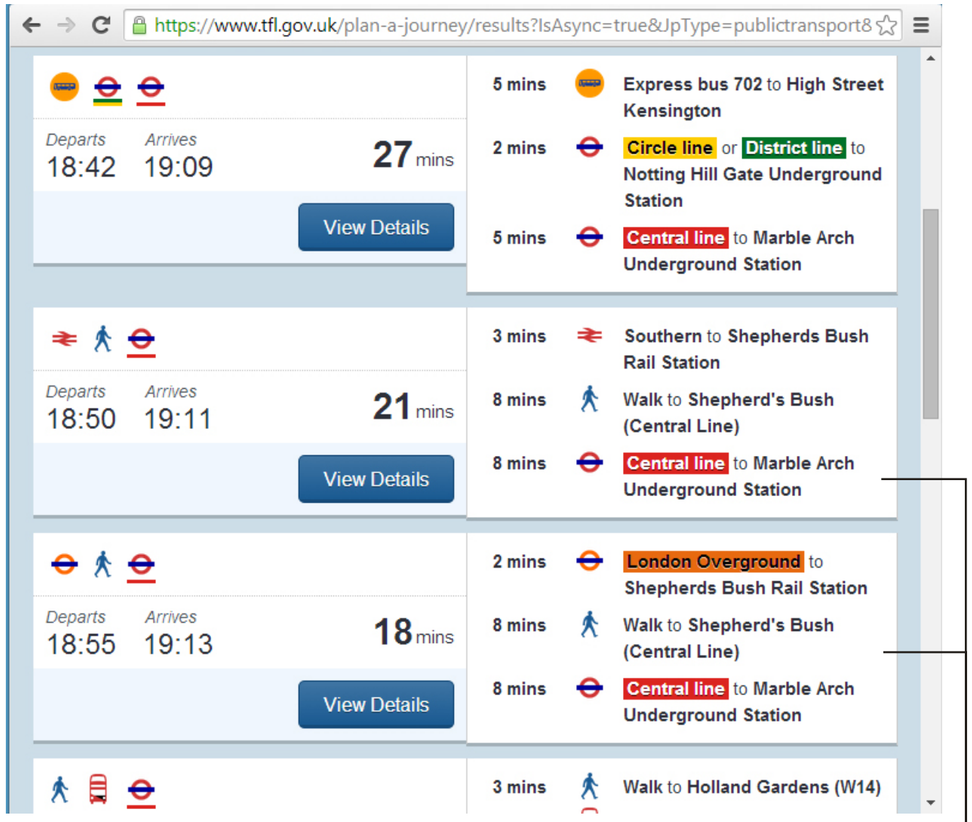
Hamburger menu style

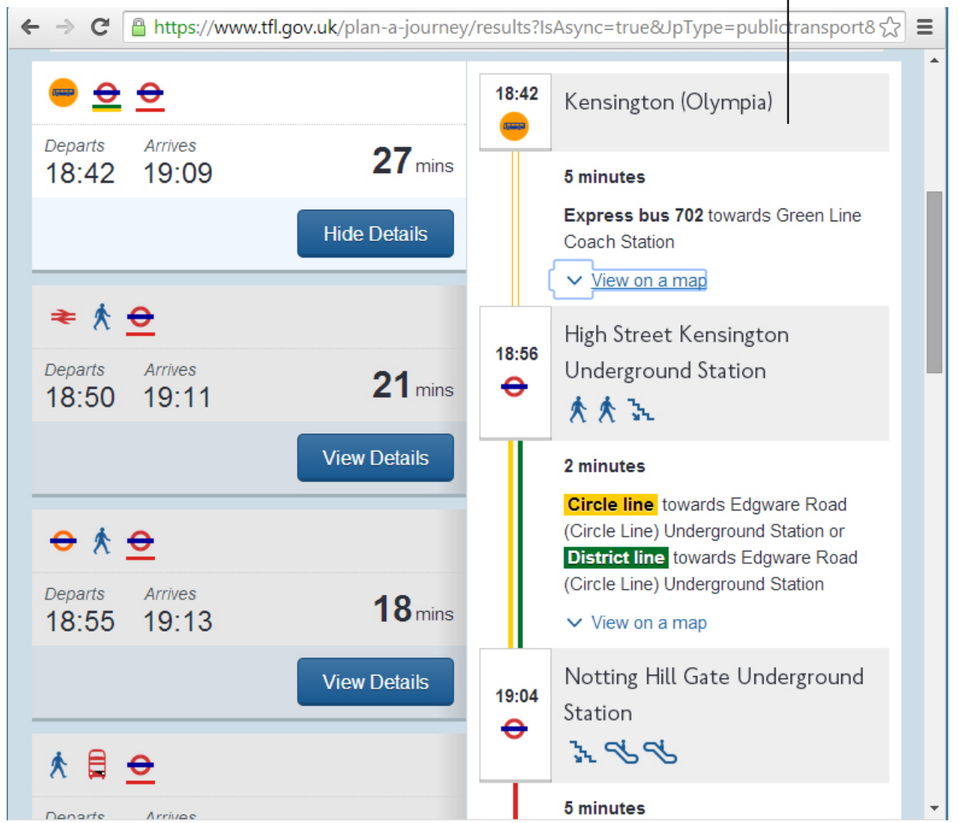
Modern user interface

Breadcrumbs navigation

Transport for London https://www.tfl.gov.uk

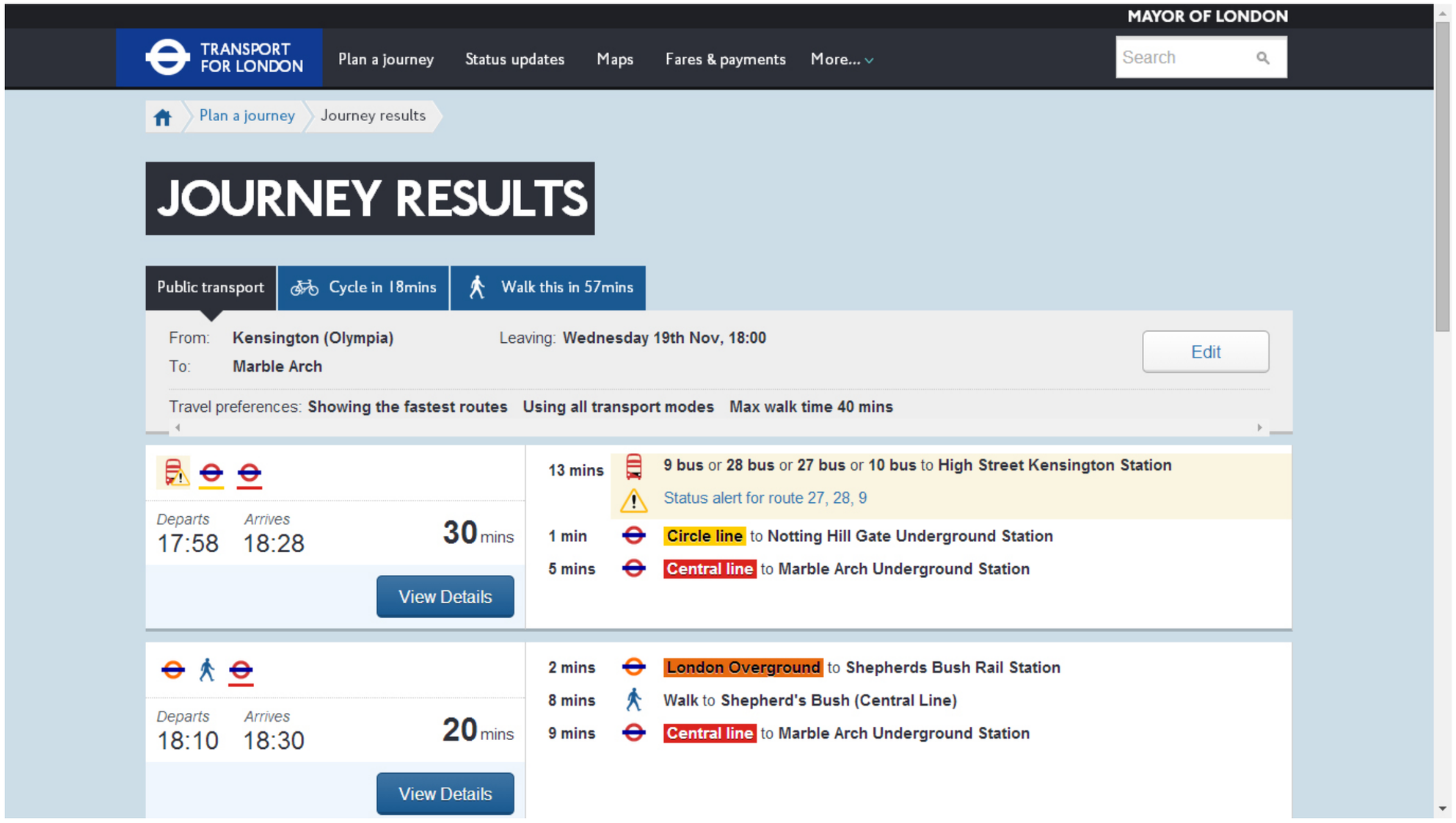
Flyout menu



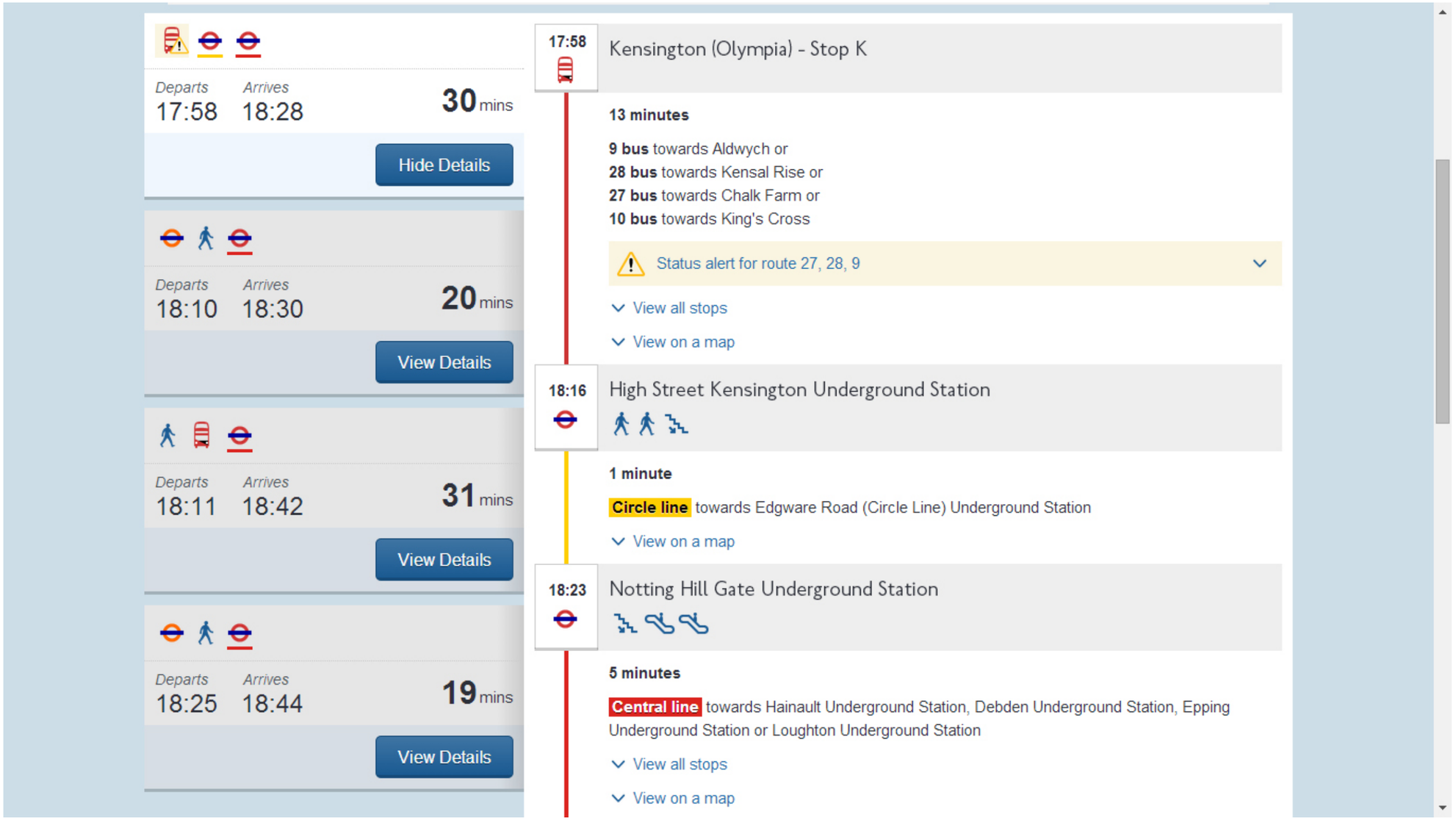


Responsive layouts

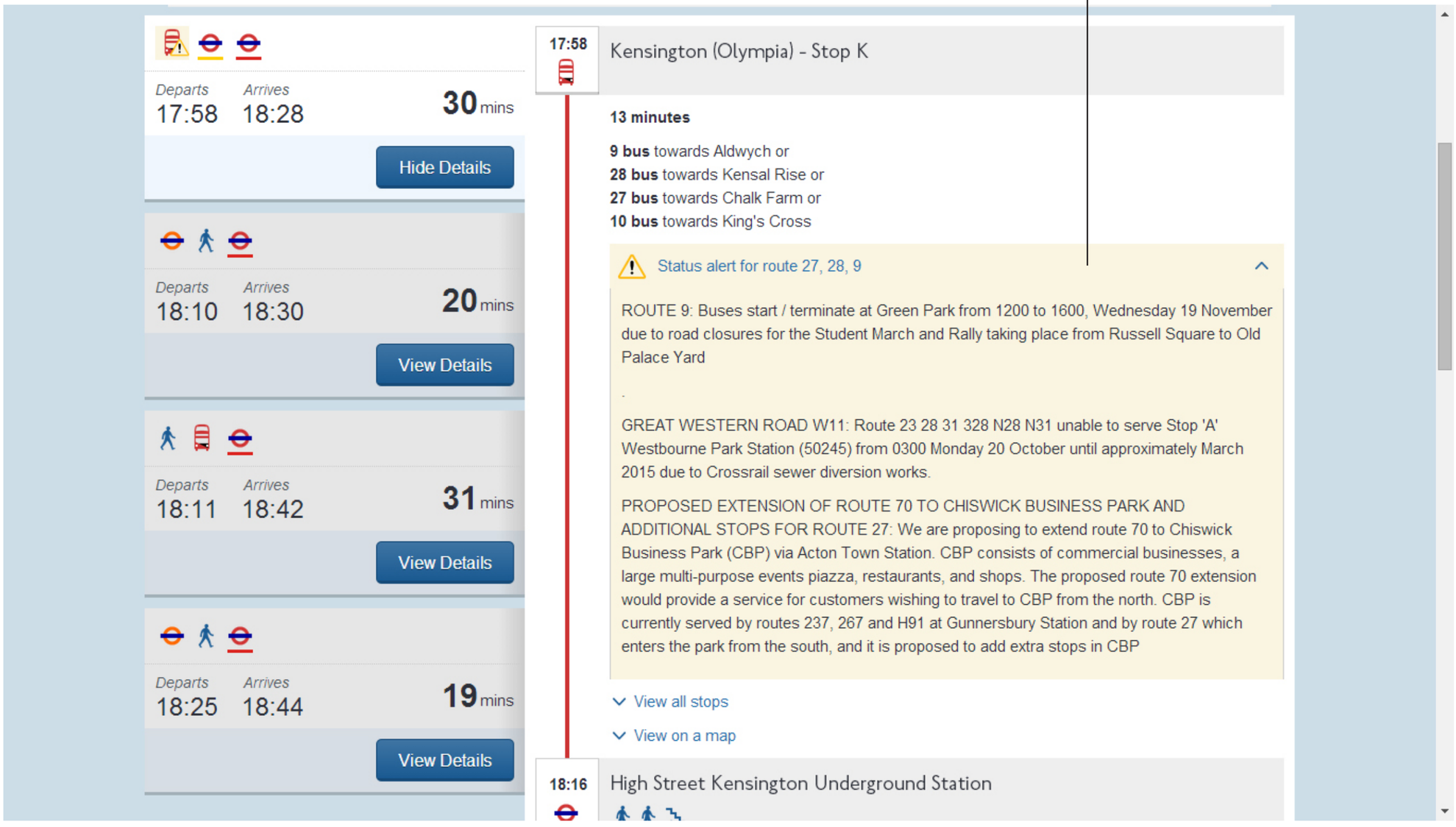
Transport for London https://www.tfl.gov.uk



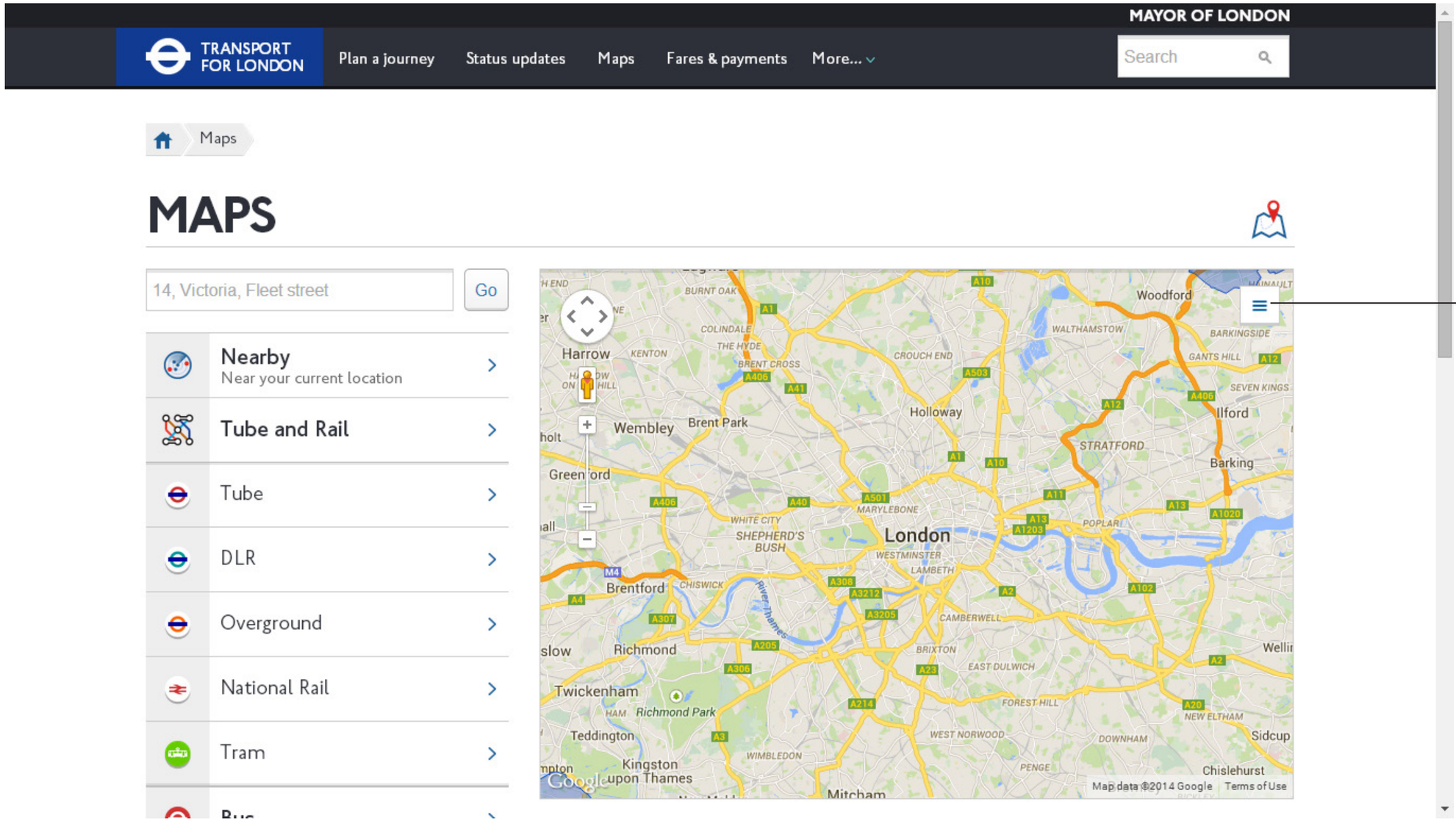
Transport for London https://www.tfl.gov.uk



Transport for London https://www.tfl.gov.uk

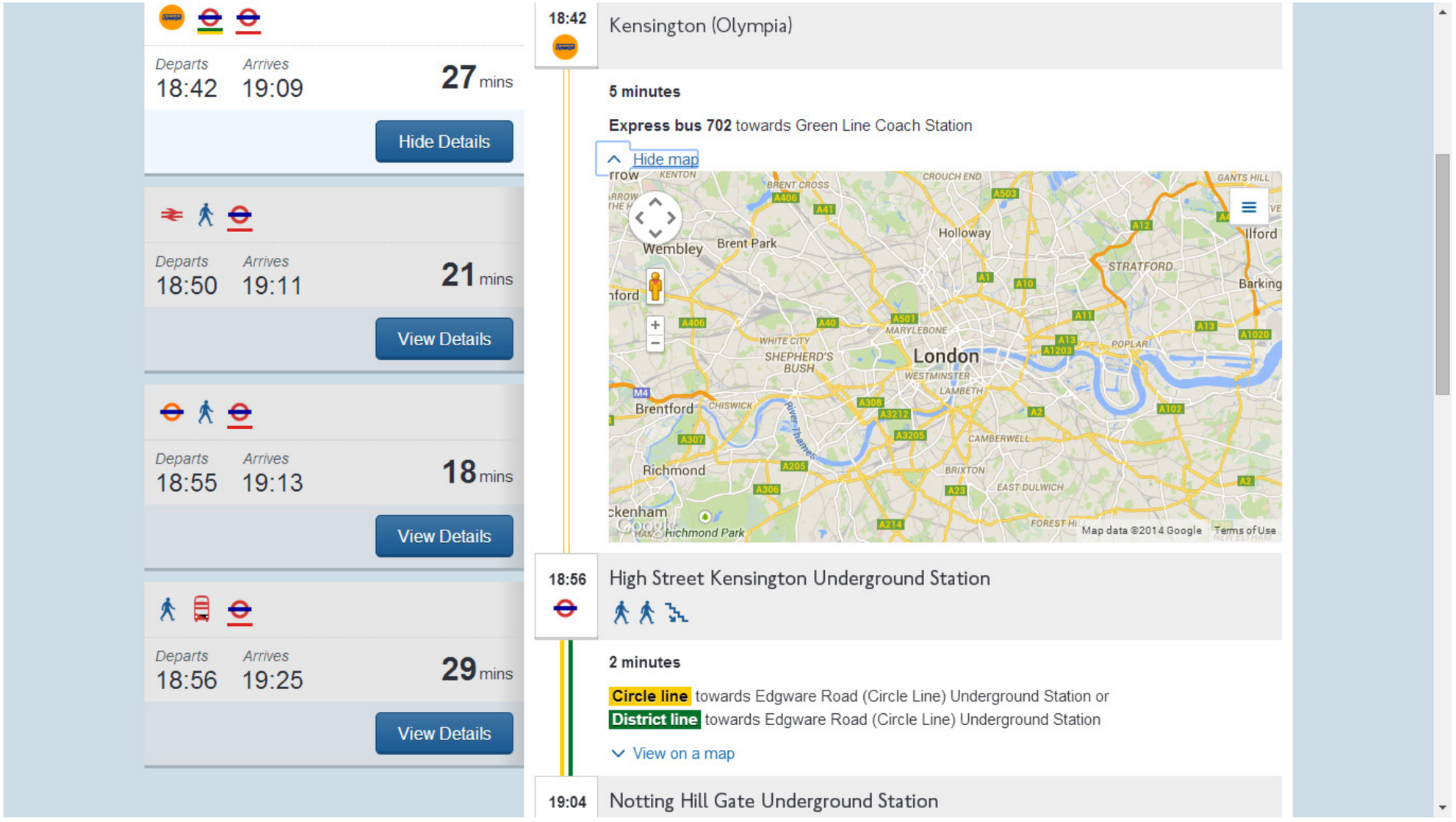


Transport for London https://www.tfl.gov.uk

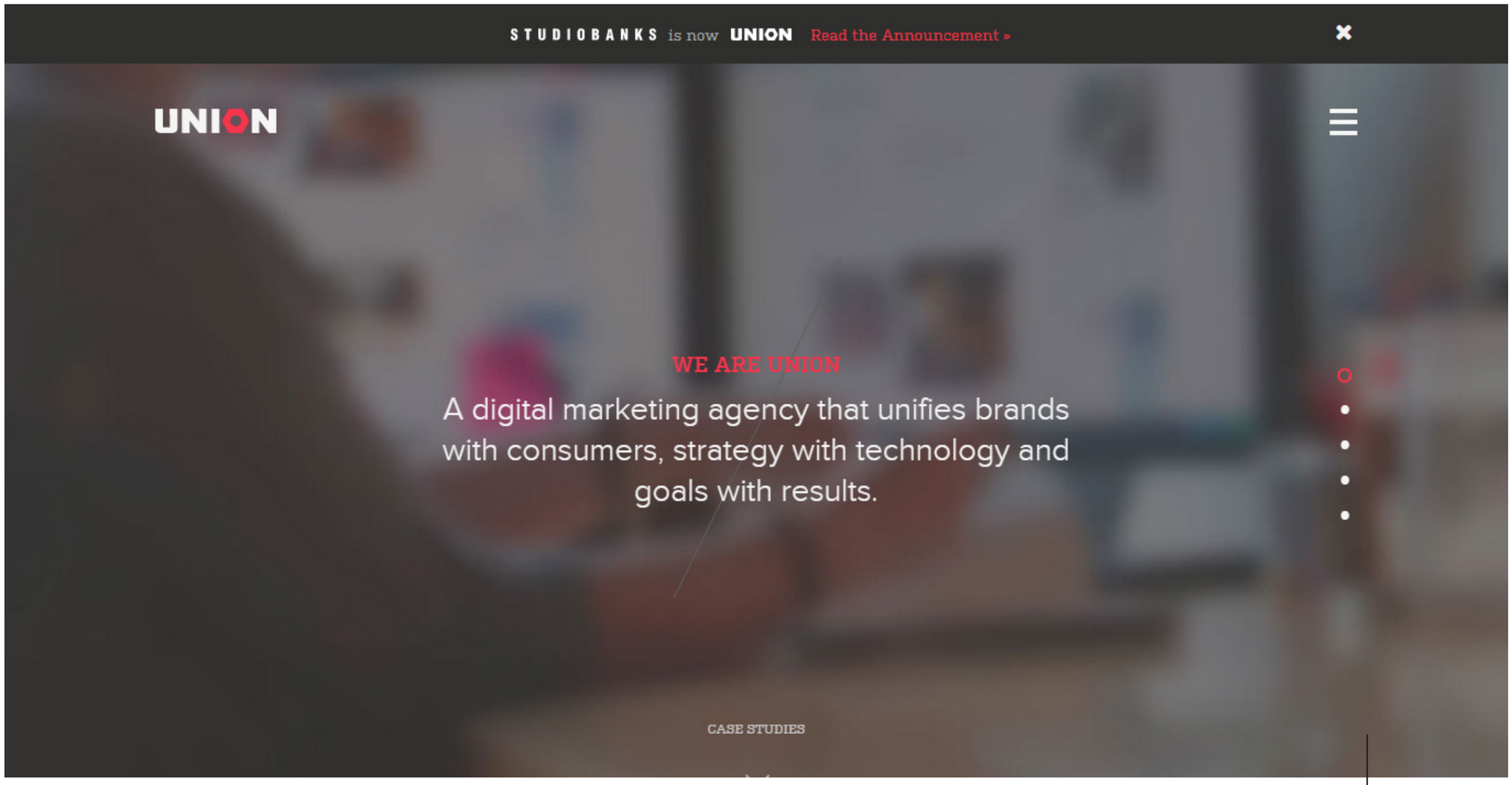


Hamburger menu icon

Transport for London https://www.tfl.gov.uk



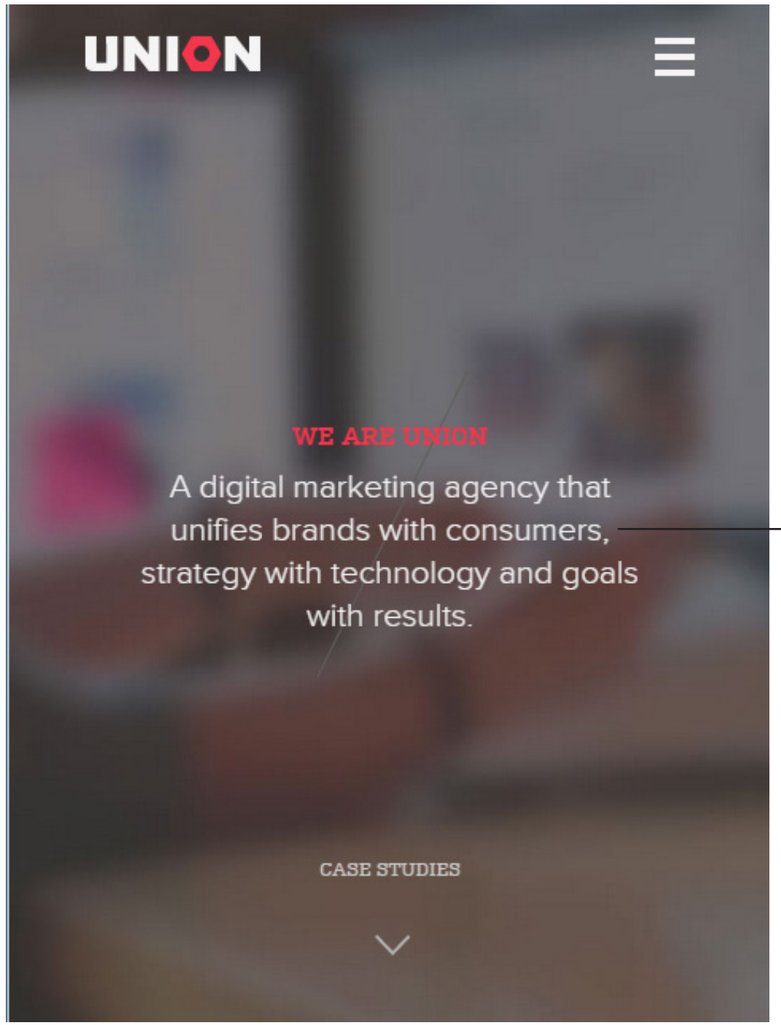
Union http://union.co/work/duke-energy



1366px x 738px

Blurred background image

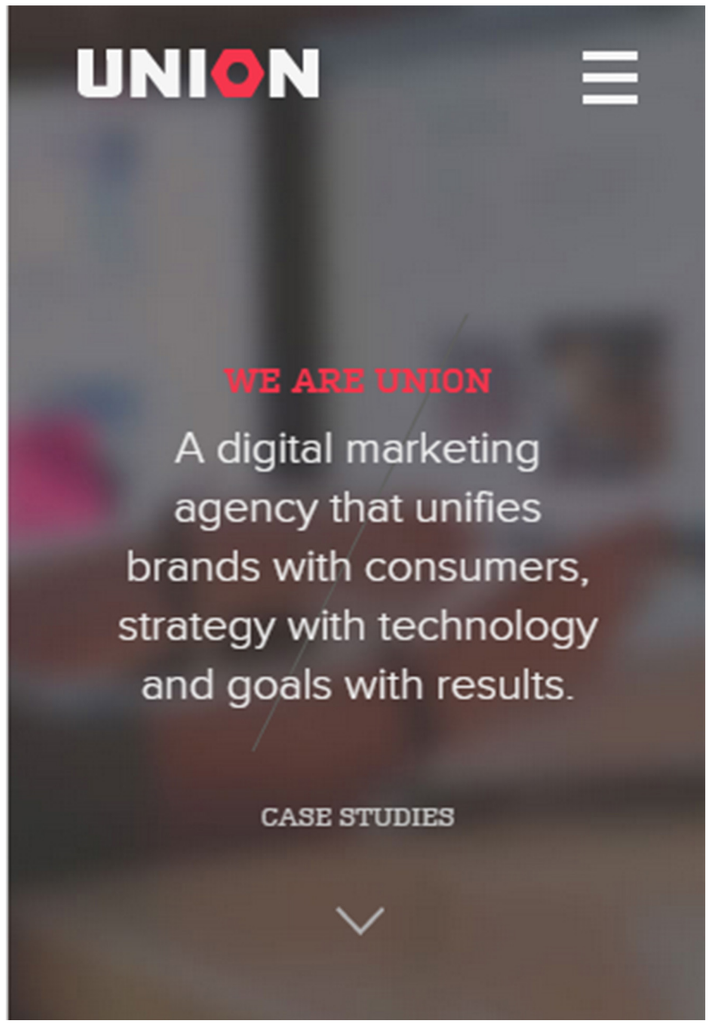
Union http://union.co/work/duke-energy



Responsive type

480px x 640px

Union https://www.tfl.gov.uk



320px x 480px

Highlights of the websites

Responsive web design principles: enables a viewing experience to the user that is optimised across all devices such that the screen size and its contents is adapted proportionately to technical requirements of each.

Responsive type: The typography resizes and realigns to the variable screen sizes enabling easier reading.

Fluid inline images: The images embedded in the content, resize proportionately to the screen sizes according to set percentages.

Responsive layouts: The grids and columns of the screen realign according to the variable screen sizes.

Responsive navigation: The navigation adapts its to the various screen sizes such that it is easy for the user to sort the menu sequentially.

Responsive menu bars: The menu bars resize optimally such that user is able read the text on menu bars and navigate easily through minimum clicks.

Blurred background image: Blurred photographs reduces the overall size of the website while loading the image.

Hamburger menu style: It is symbolic icon to depict a classic menu when clicked.

Modern User interface: The characteristics of a modern user interface are minimal visual clutter, simple navigation with least number of clicks, high clarity photographs that are optimised to load in least amount of time, organised data and clear sequential flow of information.

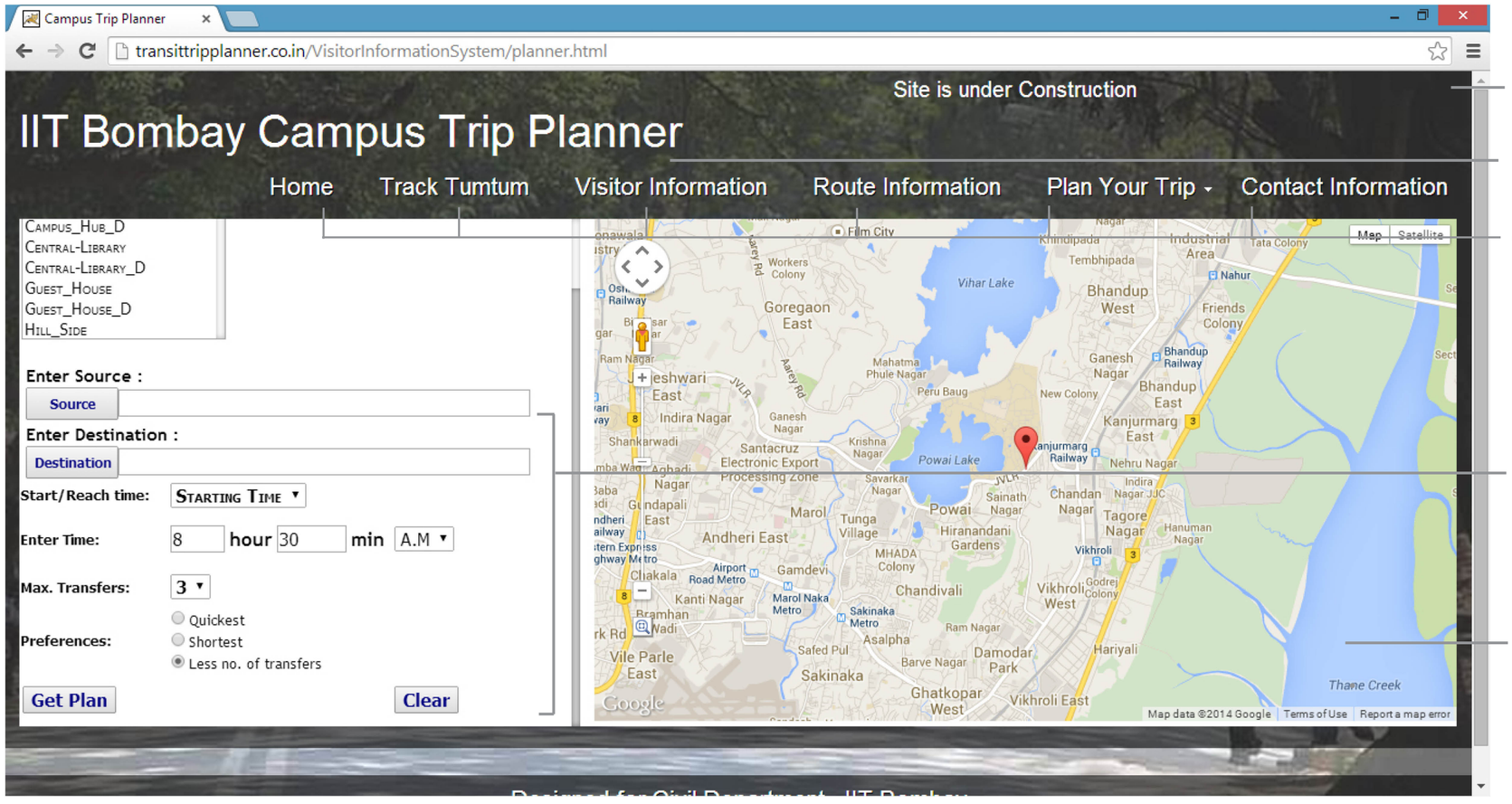
Technical Specifications - Responsive Design

Courtesy: http://www.mutedialogue.com/work/new-bbc-tv-channel-homepages/

EXISTING INTERFACE

designed by Department of Civil Engineering, IIT Bombay

Earlier interface



Observations

Lack of a clear photograph that is optimised to web viewing conditions

Lack of a visual identity to the website

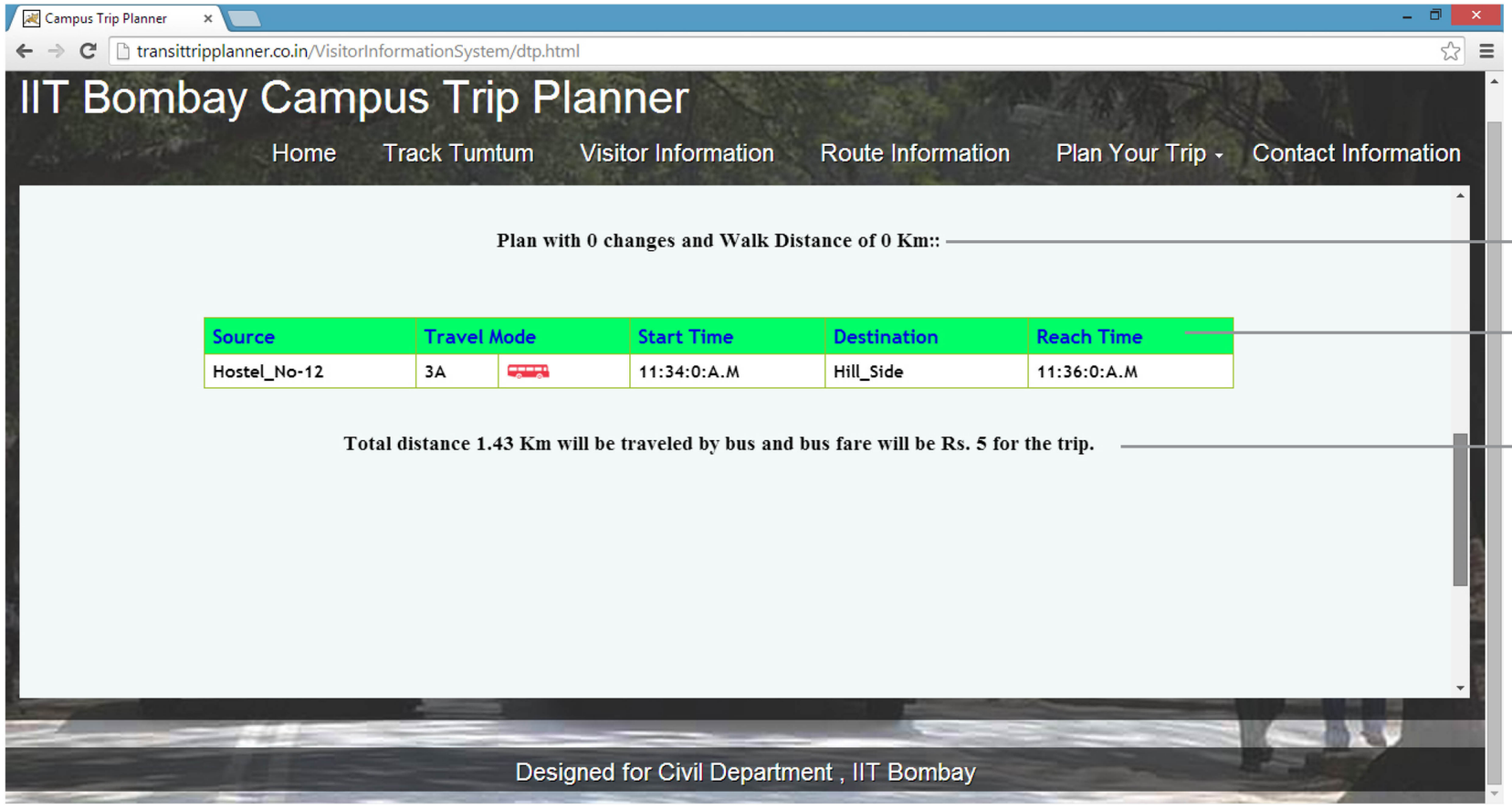
Cluttered menu bar
Lack of an organised and systematic navigation model.

The system requires several inputs from user that can avoided by planning the structure of the website.
Improper alignment of data. Lacks a margin from the edge of the screen.

The map provided is overextensive than required

Courtesy: http://transittripplanner.co.in/VisitorInformationSystem/

Earlier interface



Courtesy: http://transittripplanner.co.in/VisitorInformationSystem/

Observations

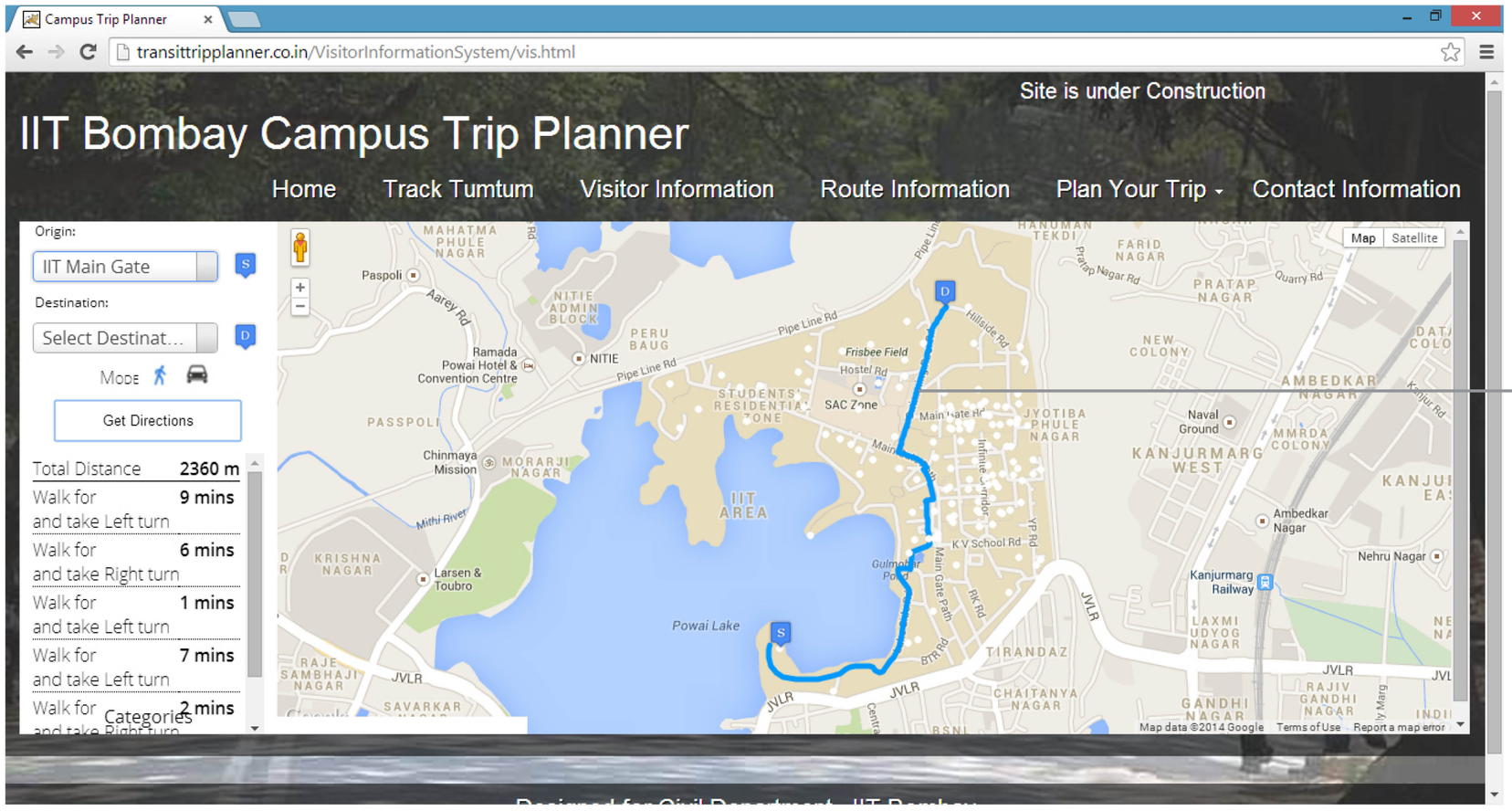
Lack of a visual to display route on map

Unnecessary display of output. Out of context sentences can be eliminated

Improper visual design
Unnecessary use of colour

Lack of visual hierarchy

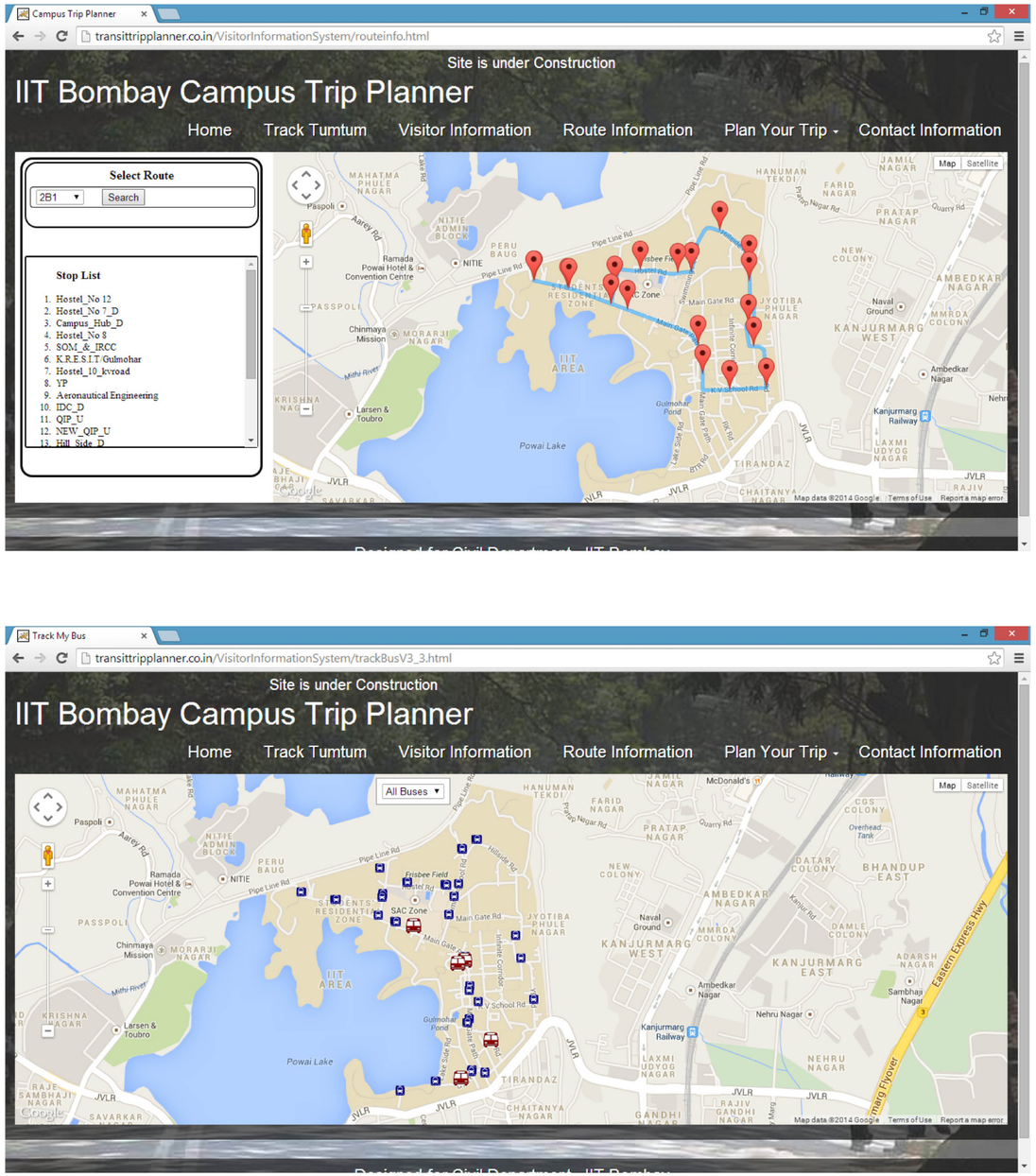
Earlier interface



Absence of visual cue to show directions

Courtesy: http://transittripplanner.co.in/VisitorInformationSystem/

Earlier interface



Courtesy: http://transittripplanner.co.in/VisitorInformationSystem/

Observations

Unnecessary display of information such as bus stops and live bus tracking information. Such data can be hidden from the user to avoid clutter and enhance the visual experience of the user without overloading information to the user.

WEBSITE

Final Project

Objective

Person travels from point A to point B in minimum time within the IIT Bombay campus.

Target Audience

1. Students
2. Staff
3. Faculty
4. Residents
5. Visitors

The prerequisite is that the above users must have access to a smartphone / deskstop computer / tablet with an internet connection.

Technical Prerequisites

1. Responsive design
2. Internet connection
3. Additional hardware
   i) GPS (Global Positioning System) co-ordinate locator
   ii) Touch screen input
4. Devices and Operating Systems
   i) Mobile - iOS, Android, Windows, Blackberry
   ii) Tablet - iOS, Android, Windows
   iii) Desktop Computer - Mac, Windows, Ubuntu

Legend

Walking route

Vehicular route

Origin / Destination

Bus stop

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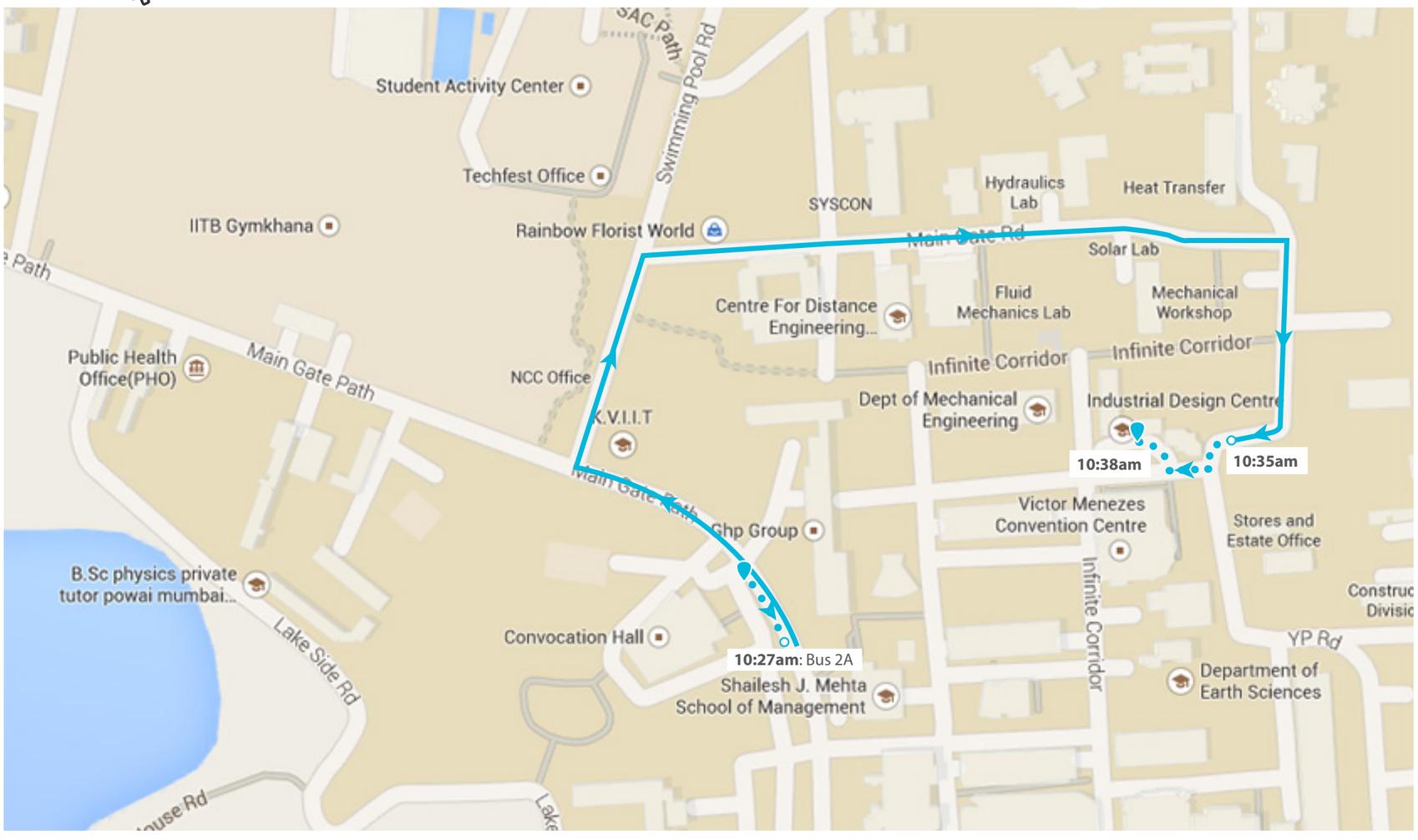
1 Colour Code

Now 18˚C

Next 2 hrs 15˚C

From: Convocation Hall

To: Industrial Design Centre



Route

Walk South East
towards Bus Stop near Shailesh
J Mehta School of Management

10:27am
Board **Bus 2A**

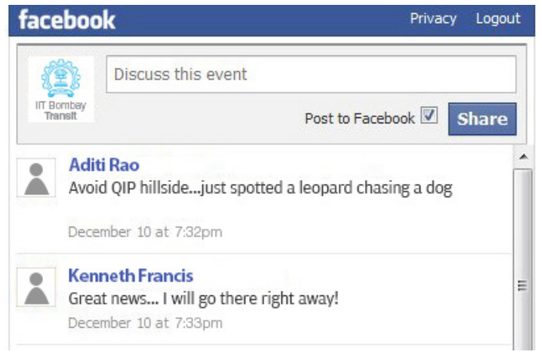
10:35am
Reach bus stop near Shishu Vihar

Walk South West
towards IDC main gate

Turn right

Turn right

10:38am
Reach IDC Main Gate



IIT Bombay
Transit

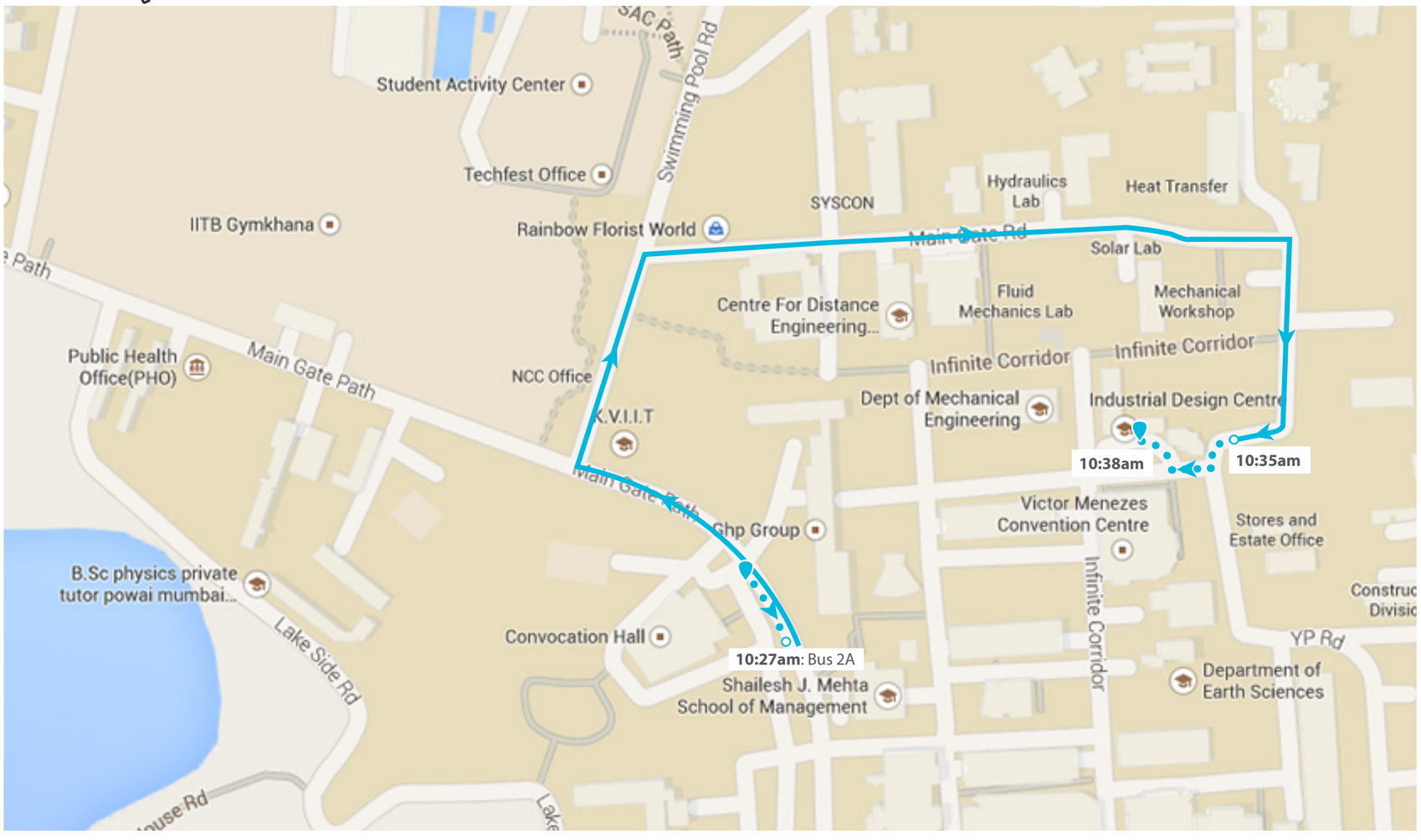
Opacity : 50% when unselected

Now 18˚C

Next 2 hrs 15˚C

From Convocation Hall

To Industrial Design Centre



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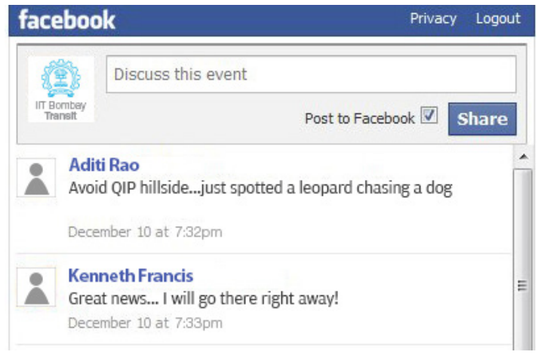

IIT Bombay
Transit

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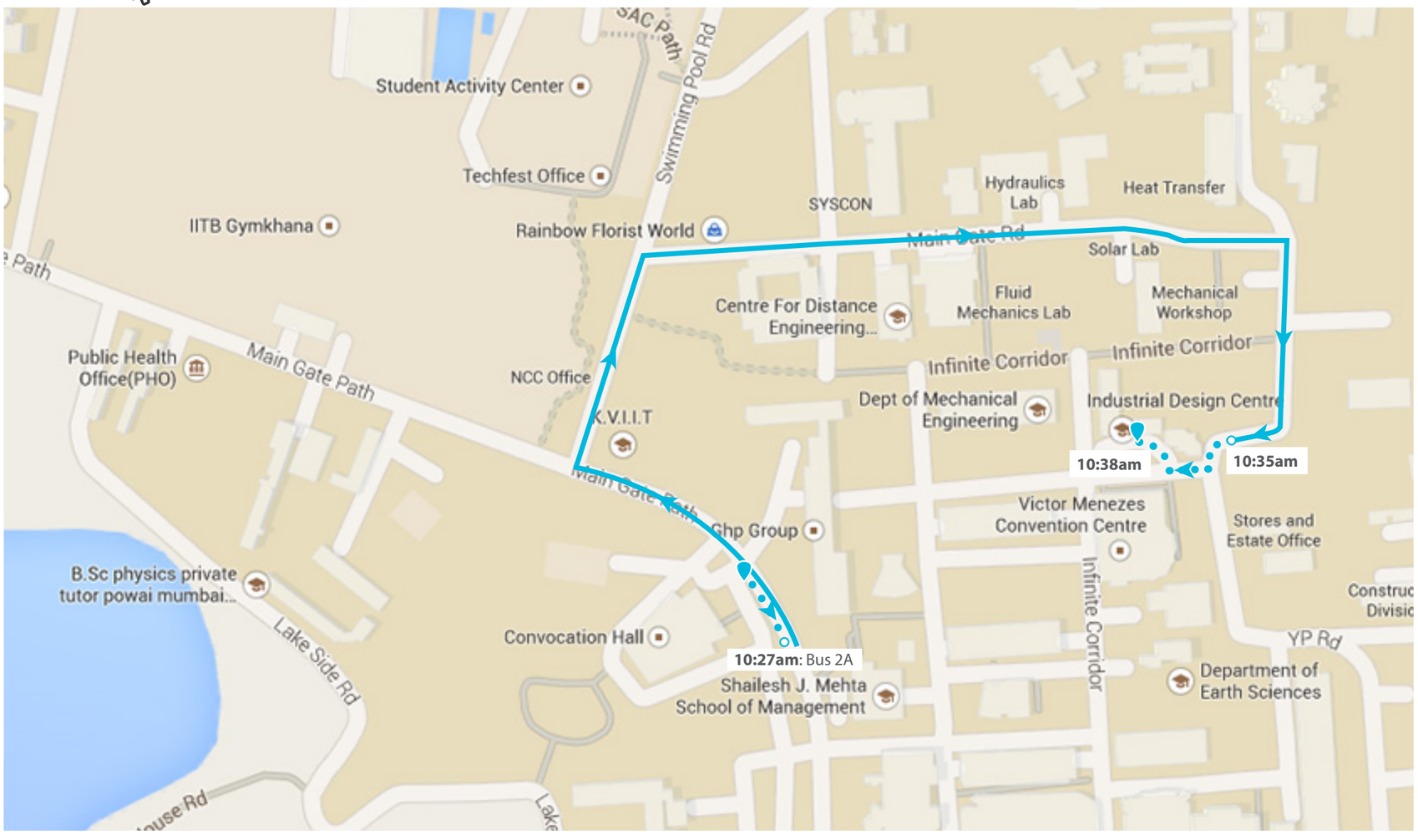

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Turn right — Directions

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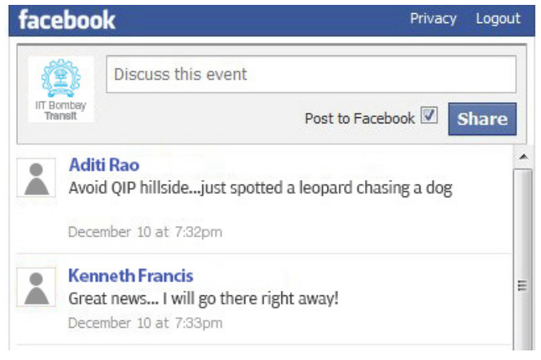
Reach IDC Main Gate



IIT Bombay
Transit

Output column on the right

Now 18˚C

Next 2 hrs 15˚C

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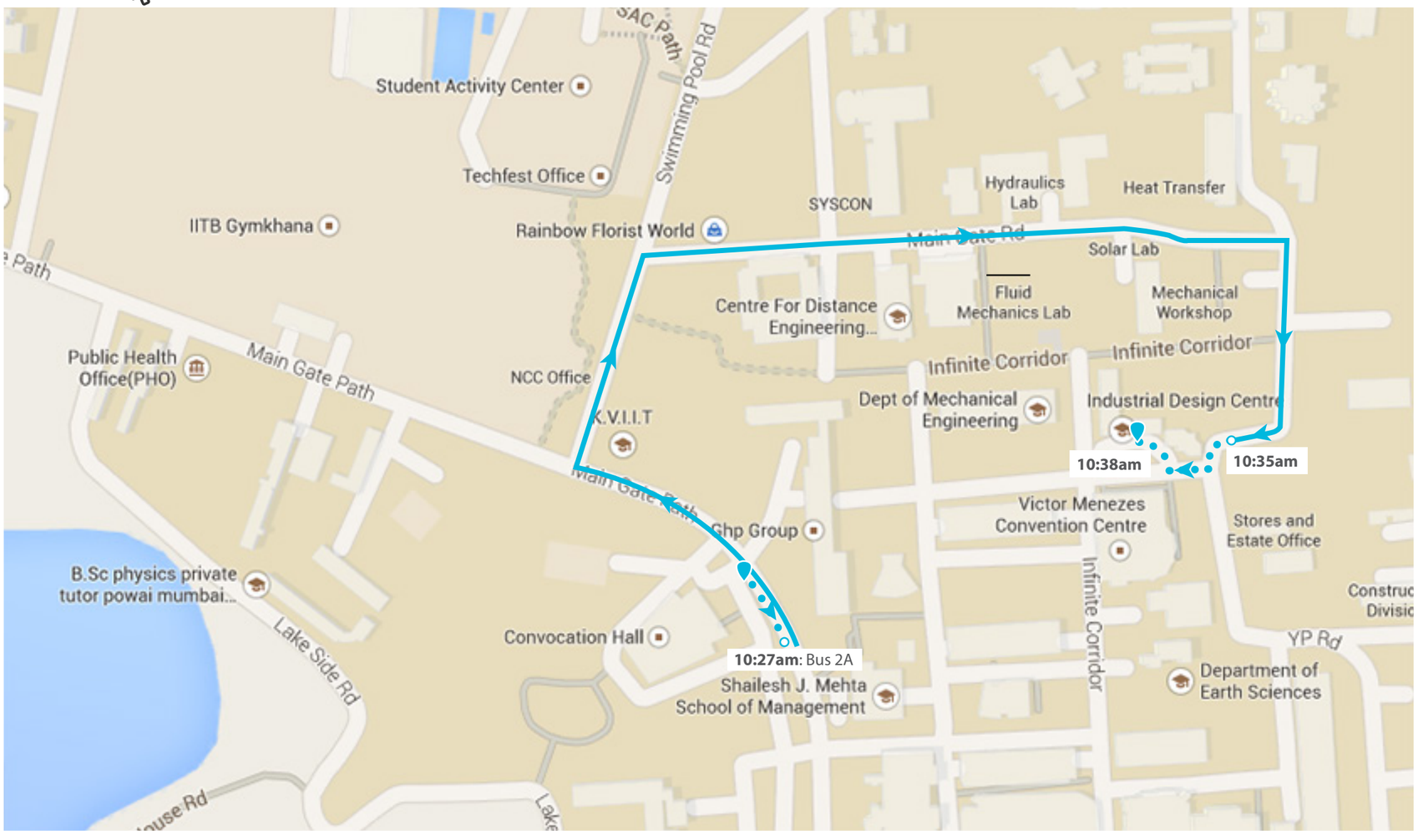
To: Industrial Design Centre



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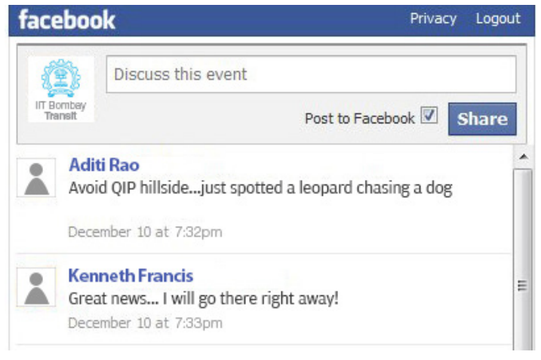


IIT Bombay
Transit

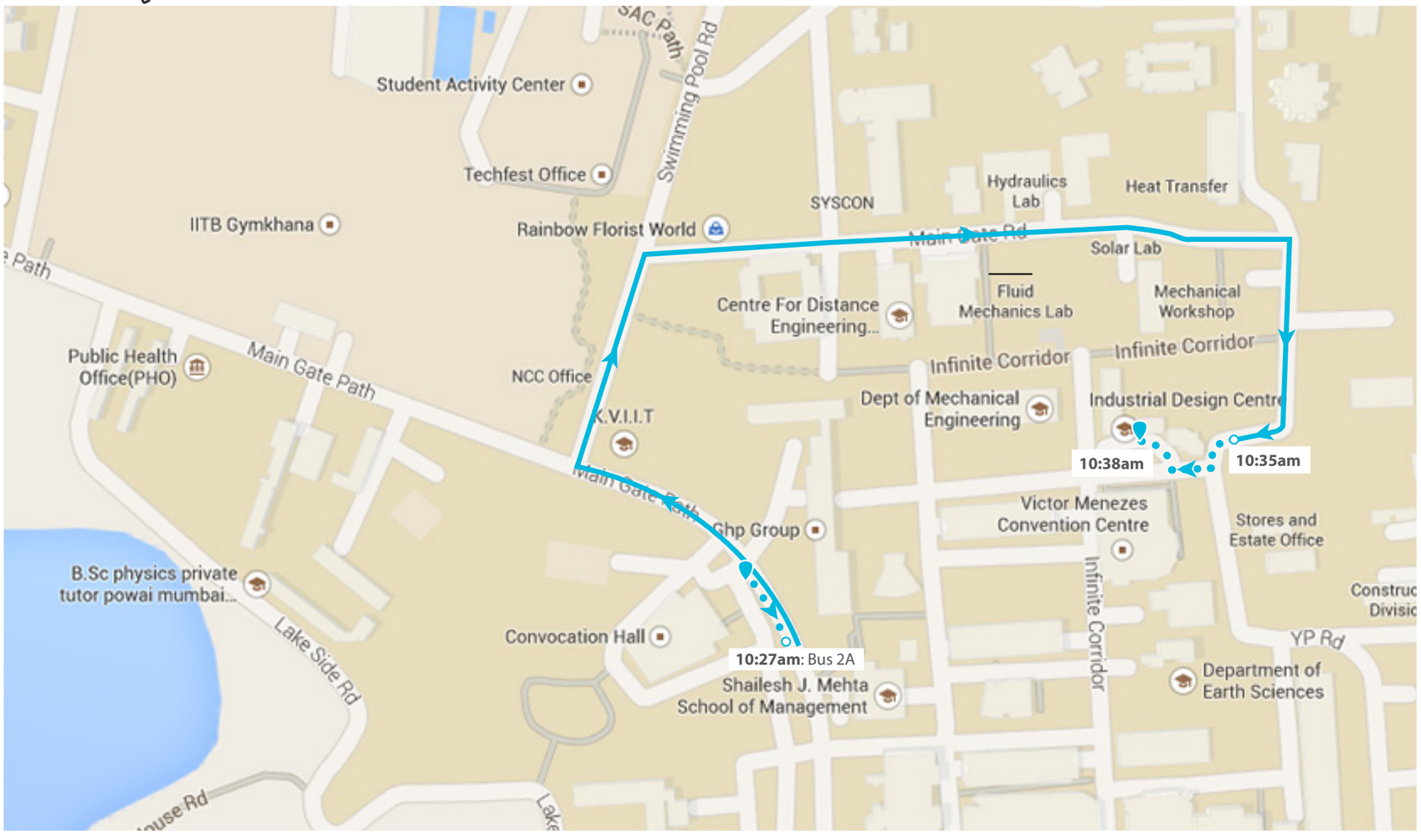
Input text fields do not interfere with the map

Now 18˚C

Next 2 hrs 15˚C

From Convocation Hall

To Industrial Design Centre



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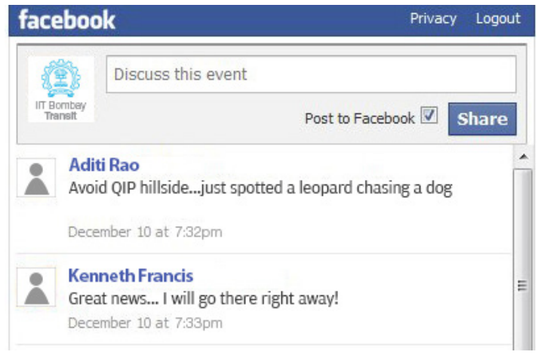

IIT Bombay
Transit

Arrows located at the centre of every route segment

Now 18˚C

Next 2 hrs 15˚C

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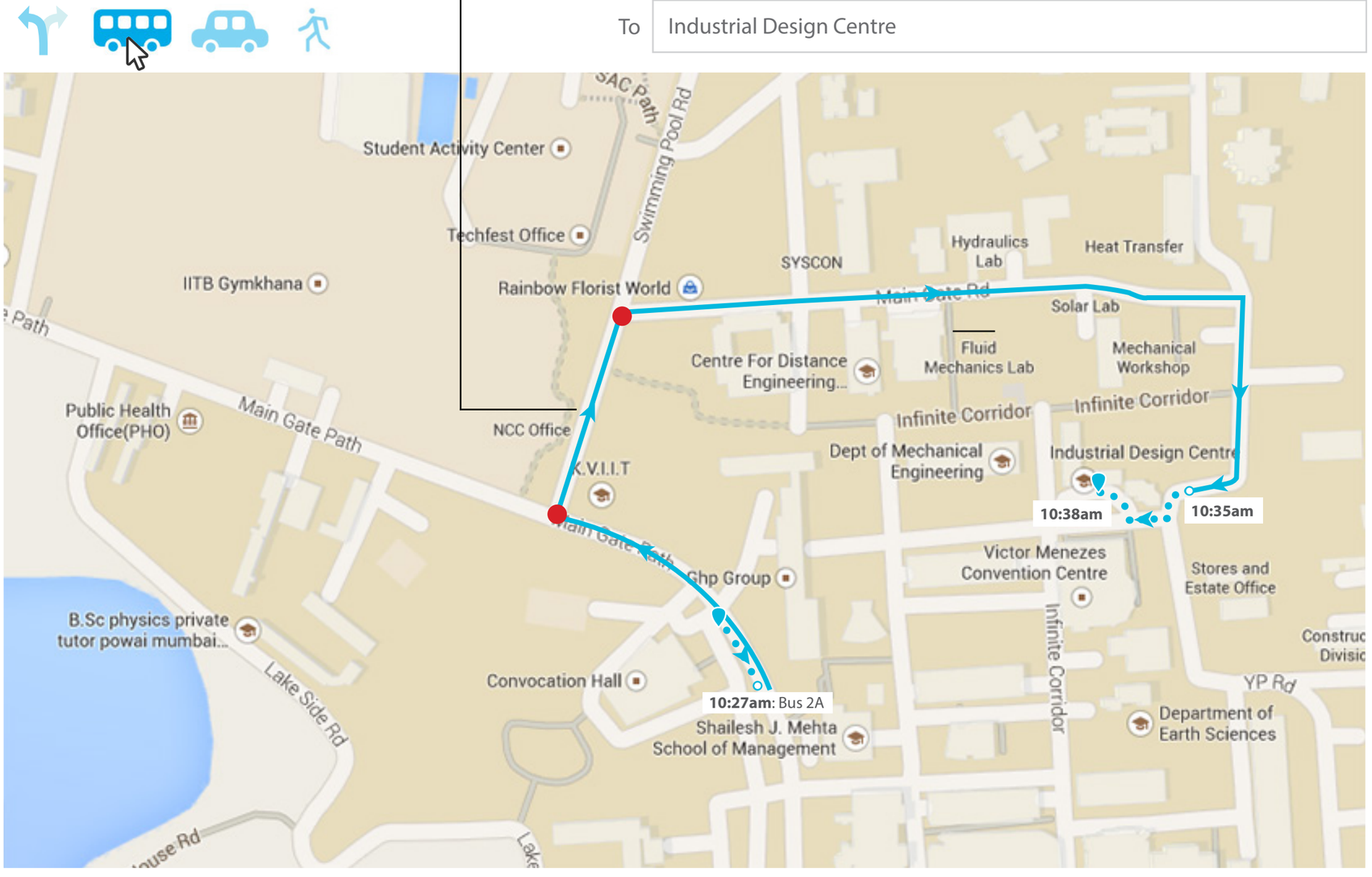

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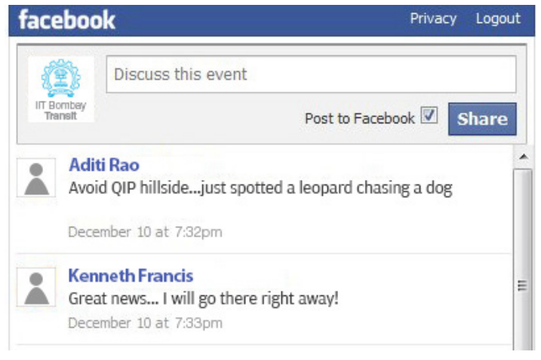

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Transit

Plugin for local weather updates

Now 18˚C | Next 2 hrs 15˚C

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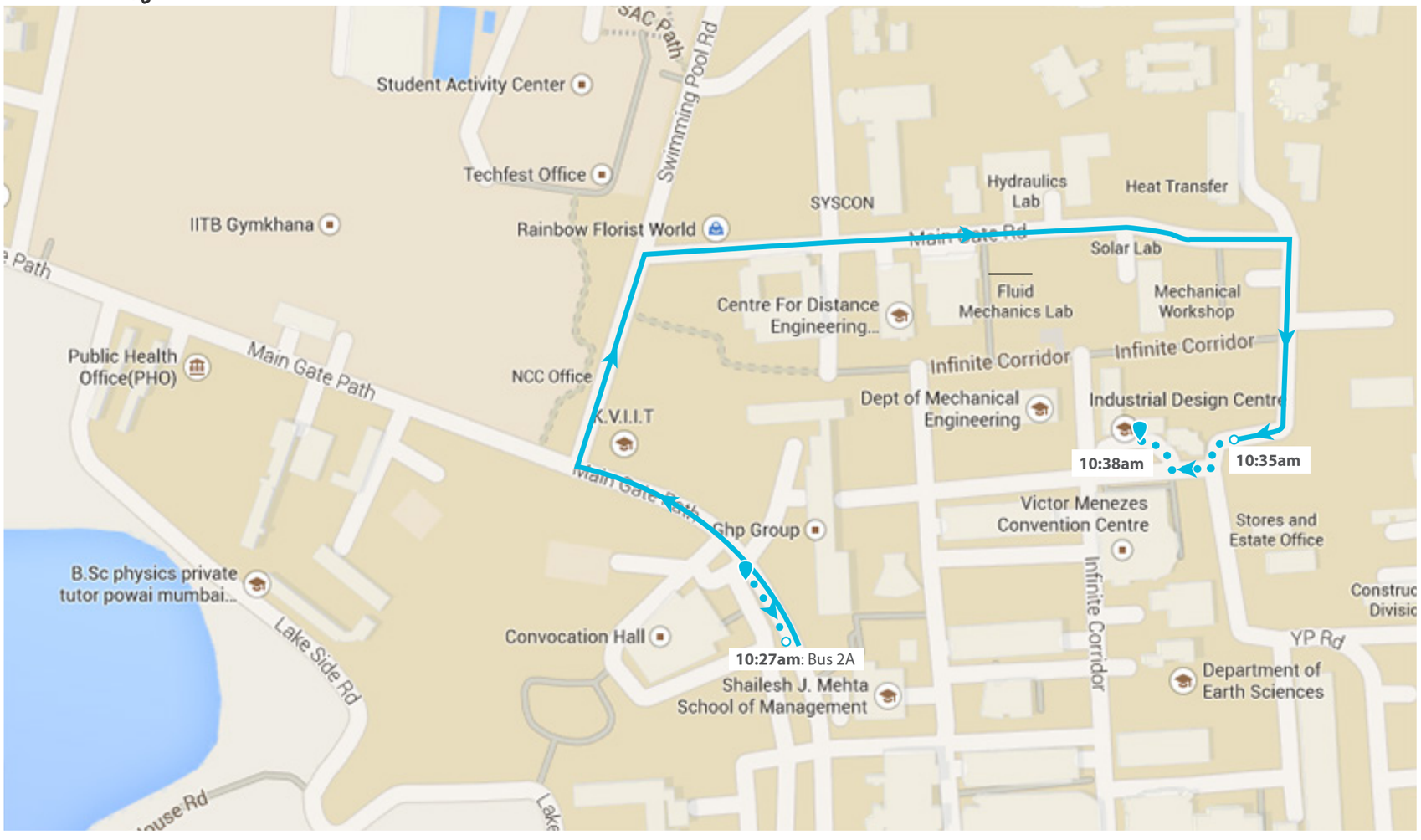
To: Industrial Design Centre



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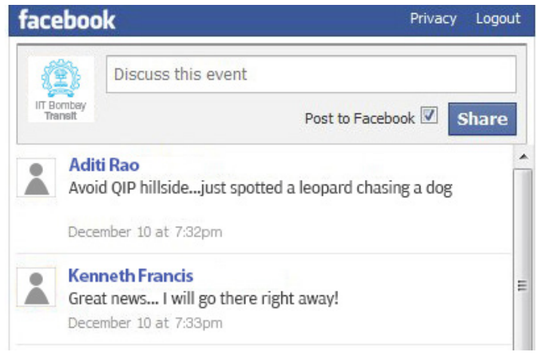


IIT Bombay
Transit

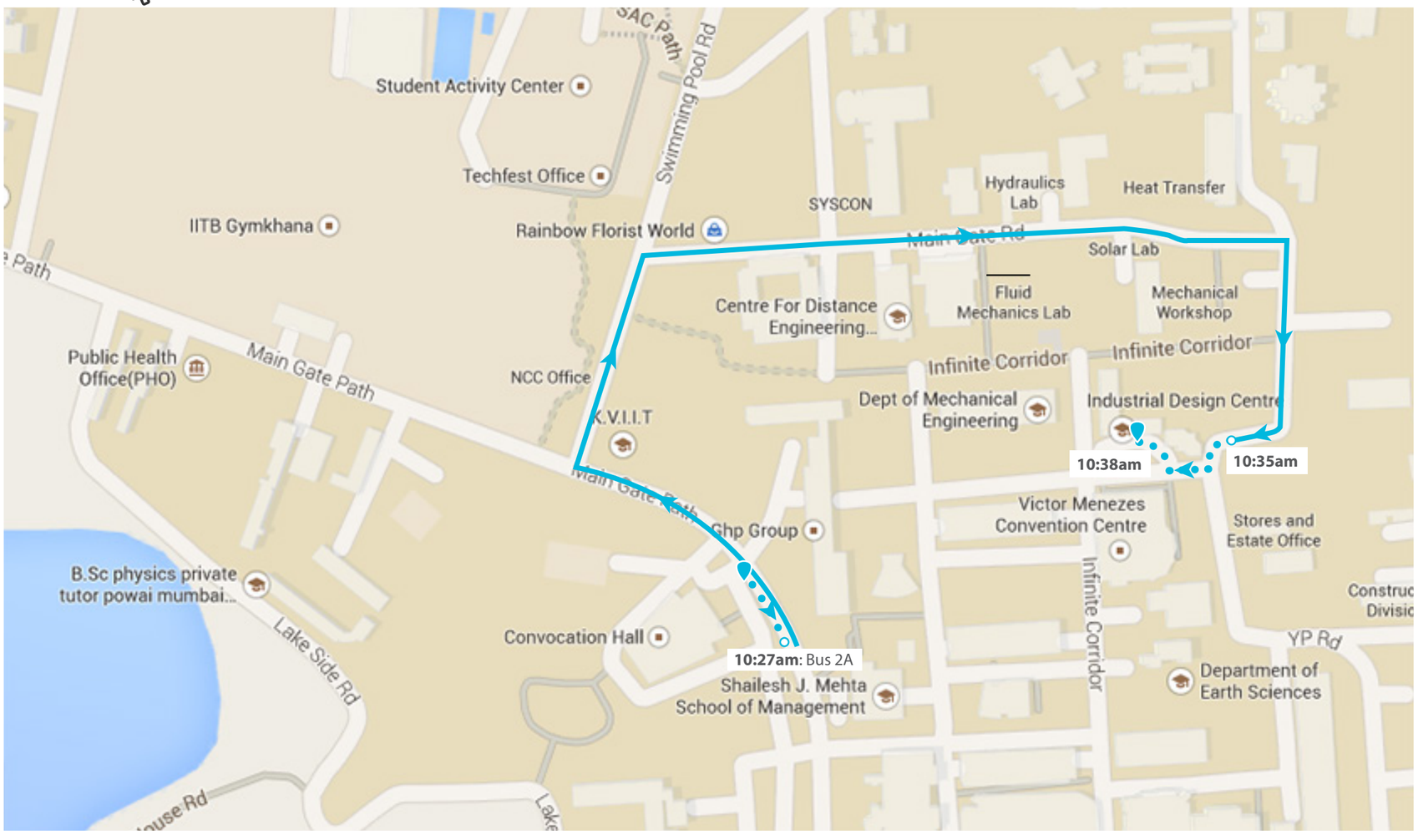
Social Network plugin

Now 18˚C

Next 2 hrs 15˚C

From Convocation Hall

To Industrial Design Centre



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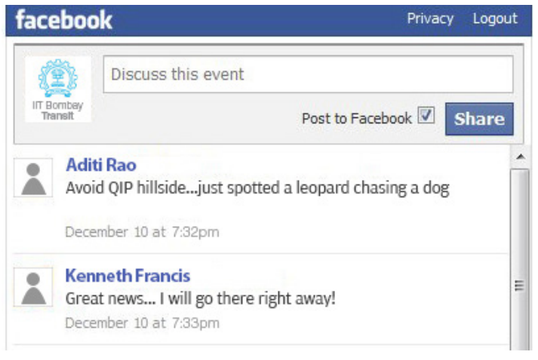
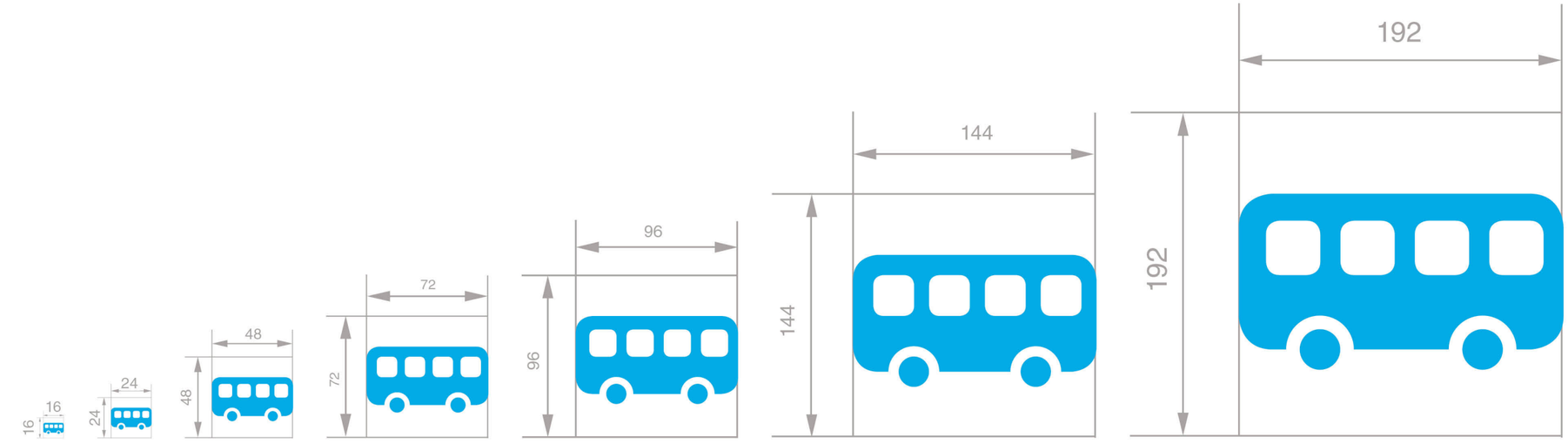


Iconography

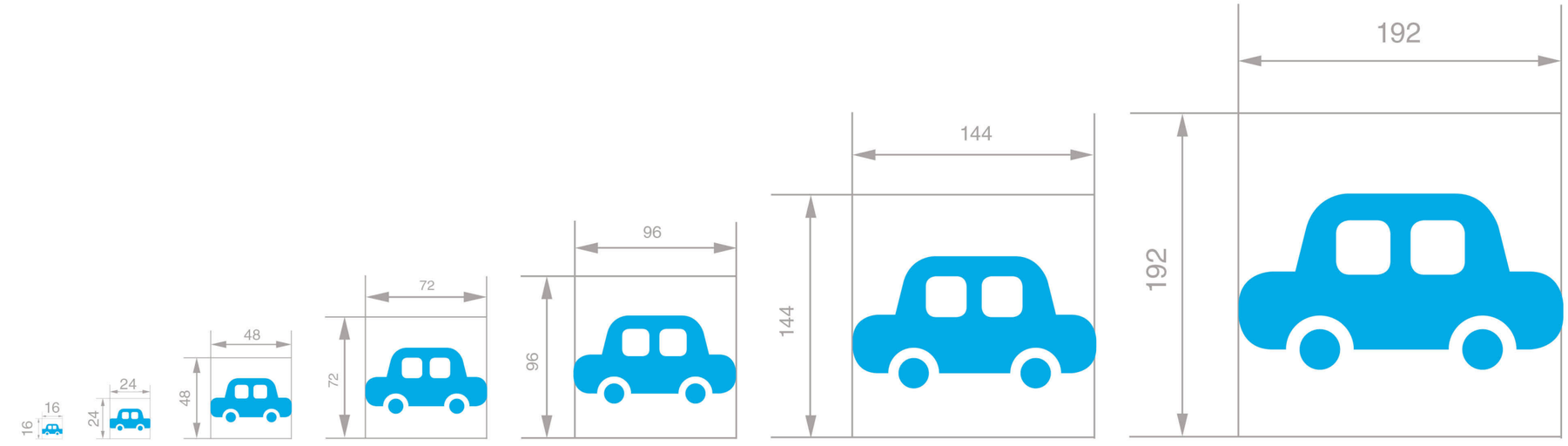
Bus



*All measurements are in pixels

Iconography

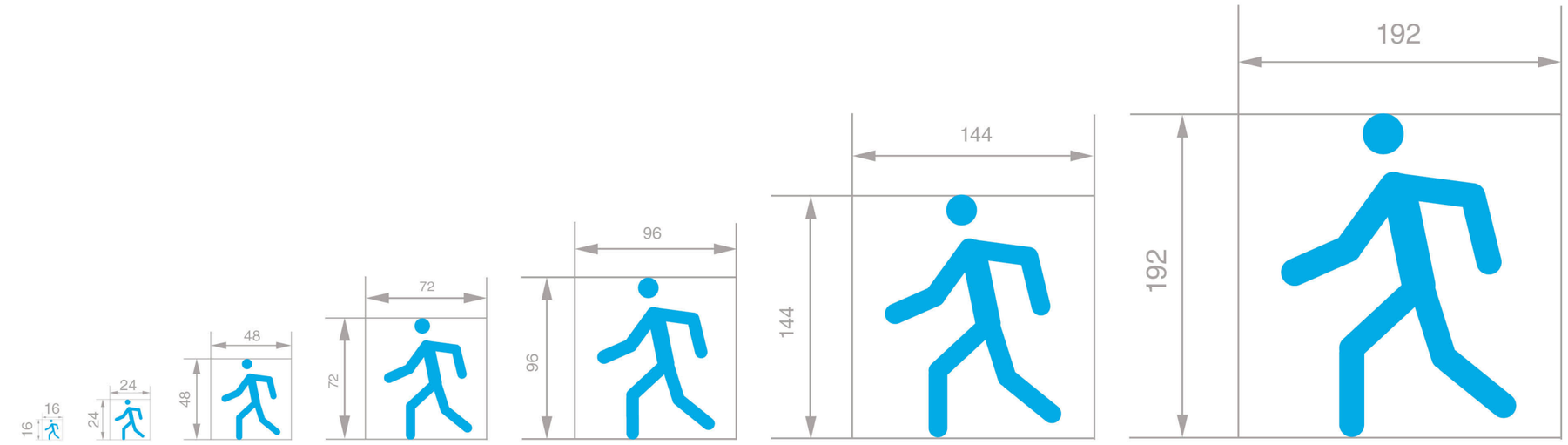
Car



*All measurements are in pixels

Iconography

Pedestrian



0.25x	0.5x	1x	1.5x	2x	3x	4x
		MDPI	HDPI	XHDPI	XXHDPI	XXXHDPI
~40 DPI	~80 DPI	~160 DPI	~240 DPI	~320 DPI	~480DPI	~640 DPI

*All measurements are in pixels

WEBSITE SCENARIOS

Nine

Scenario 1

Input by user : Type
Output to user : 4 formats

Assumptions:
i) Absence of GPS.
ii) Absence of touchscreen input.

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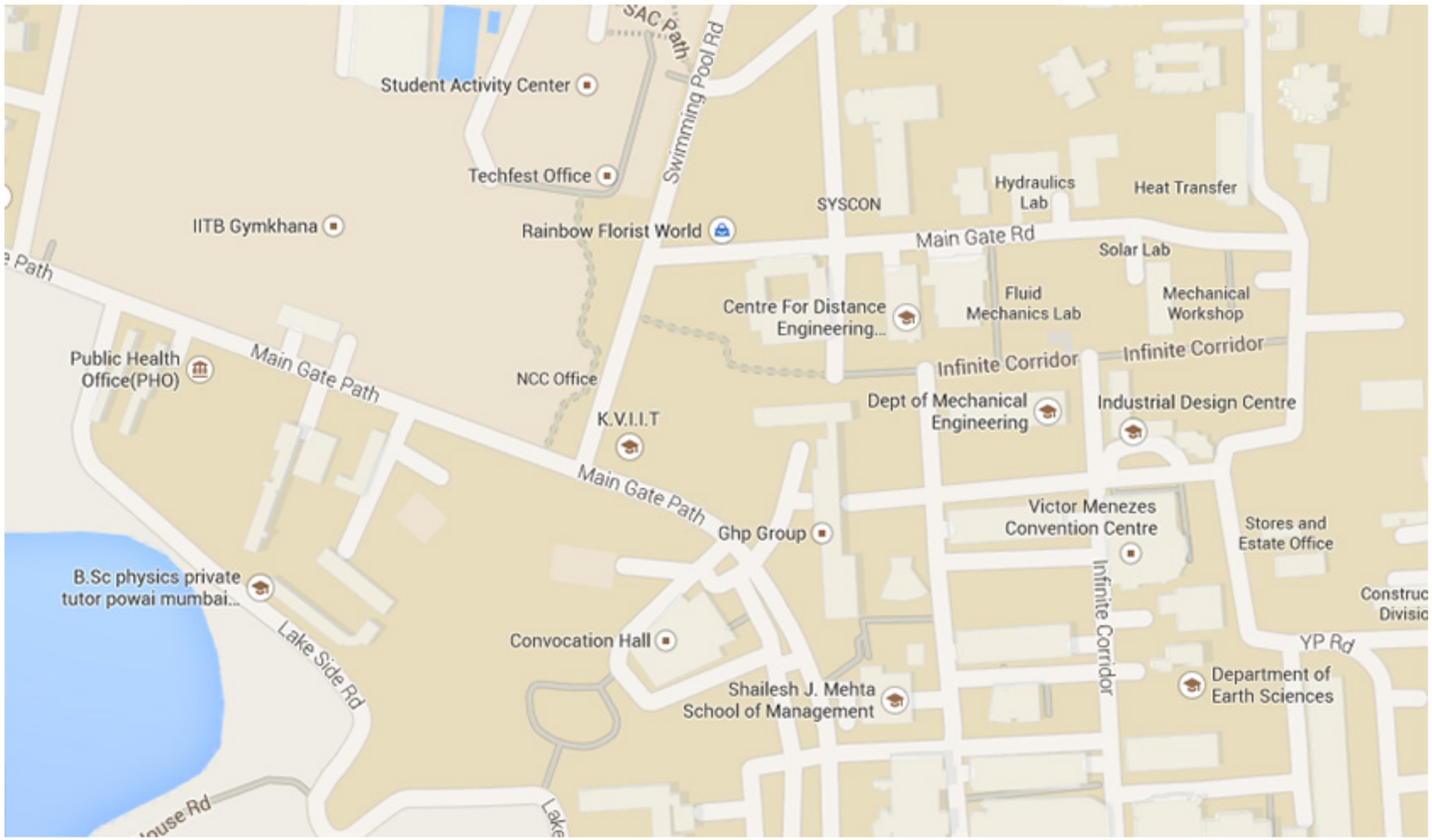
Transit

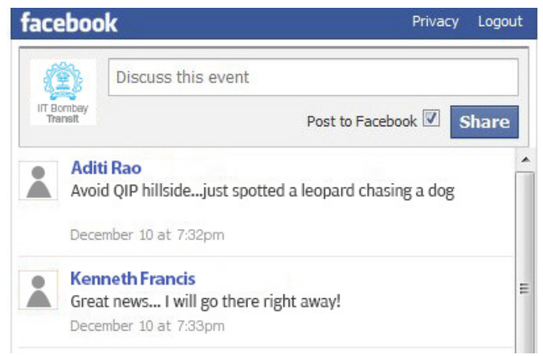
Now 18˚C

Next 2 hrs 15˚C

From Type origin here or click on the map

To Type destination here or click on the map





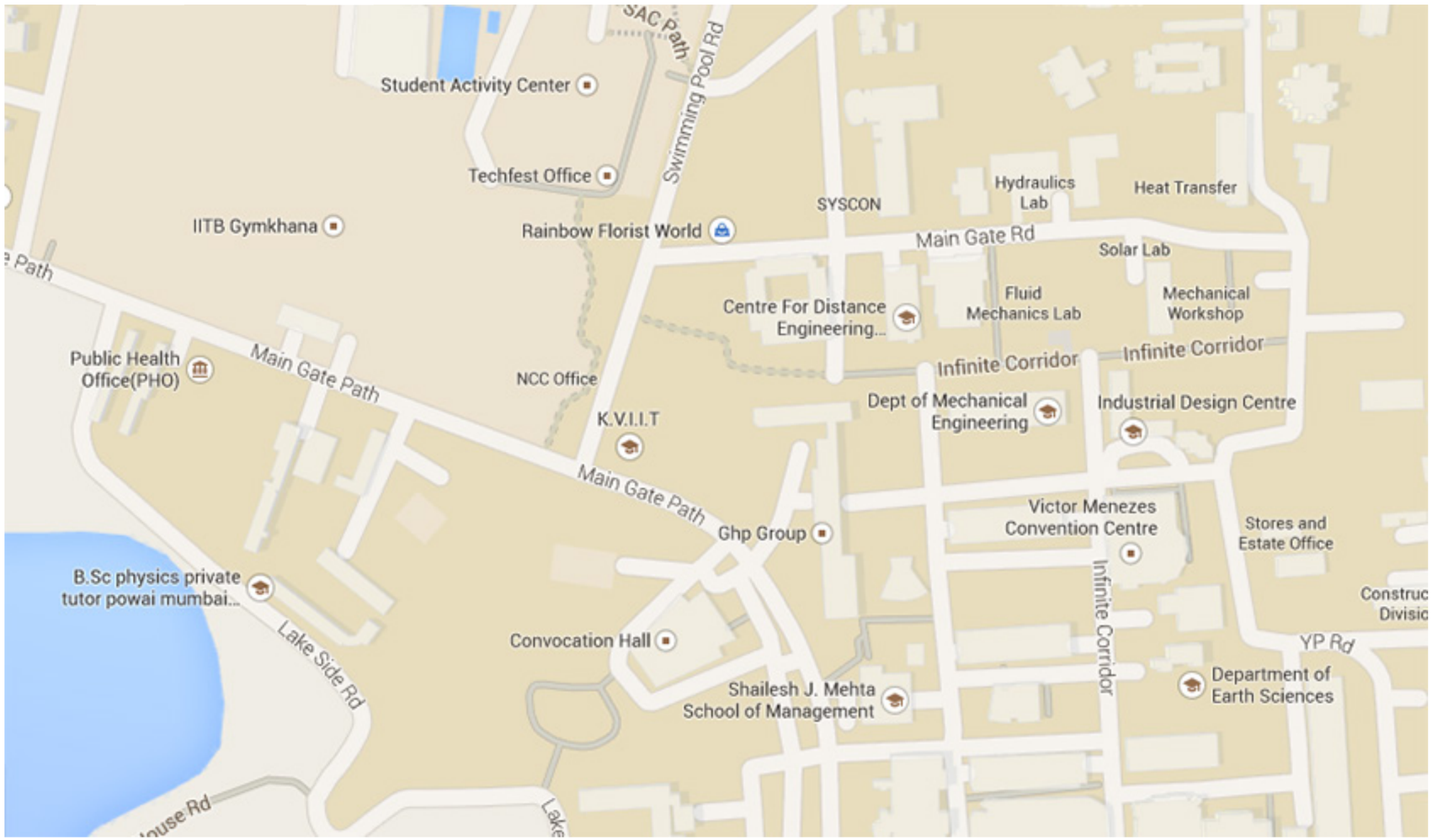
IIT Bombay
Transit

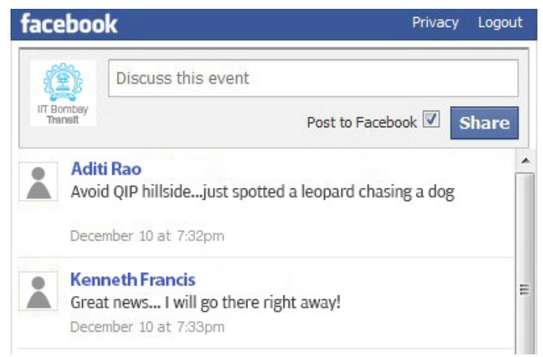
Now 18˚C

Next 2 hrs 15˚C

From |

To Type destination here or click on the map





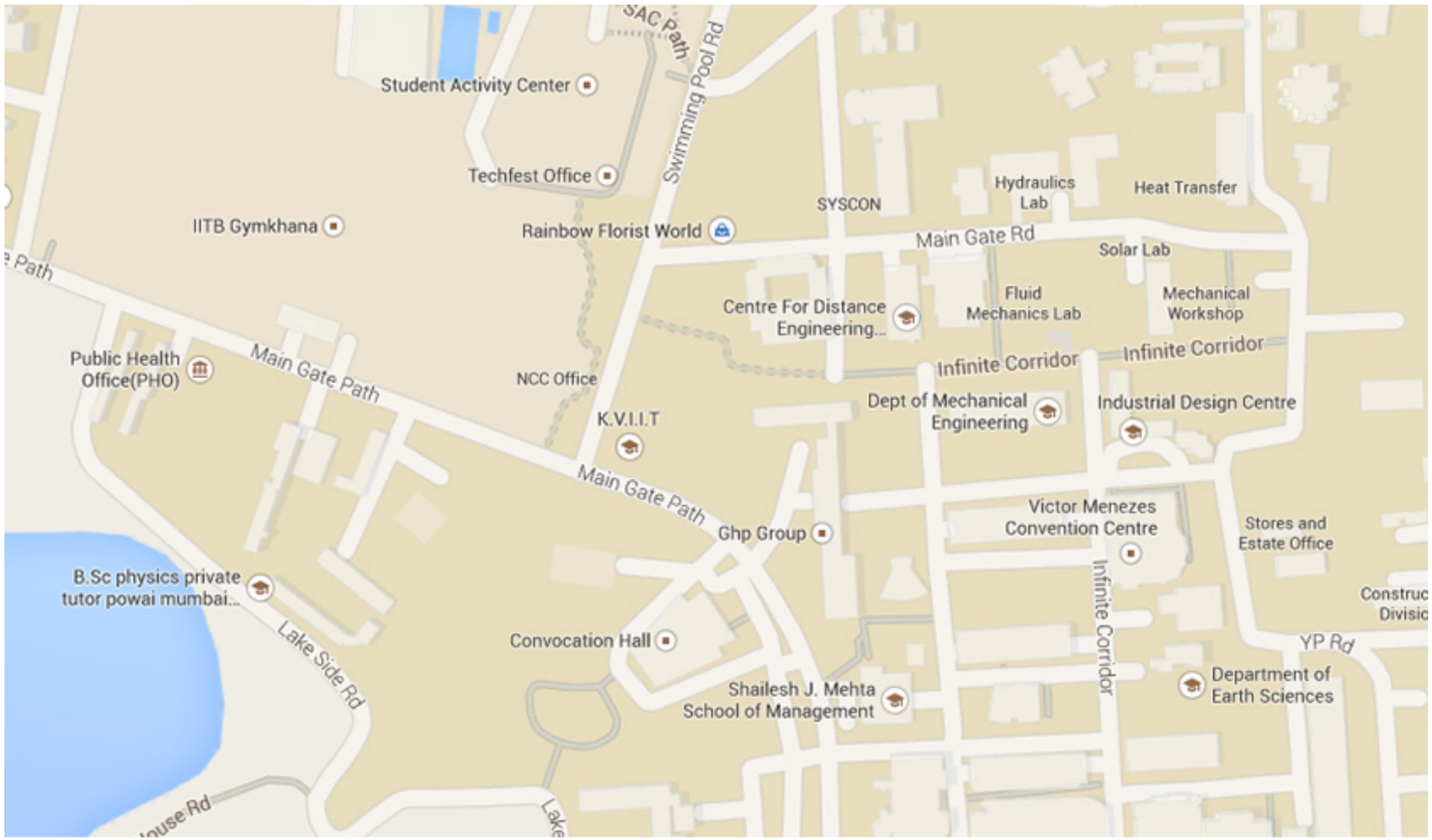
IIT Bombay
Transit

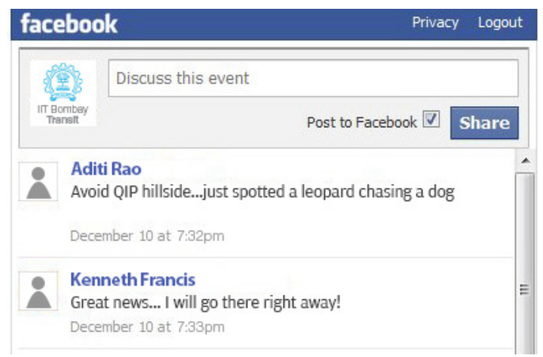
Now 18˚C

Next 2 hrs 15˚C

From Convo

To Convocation Hall





IIT Bombay
Transit

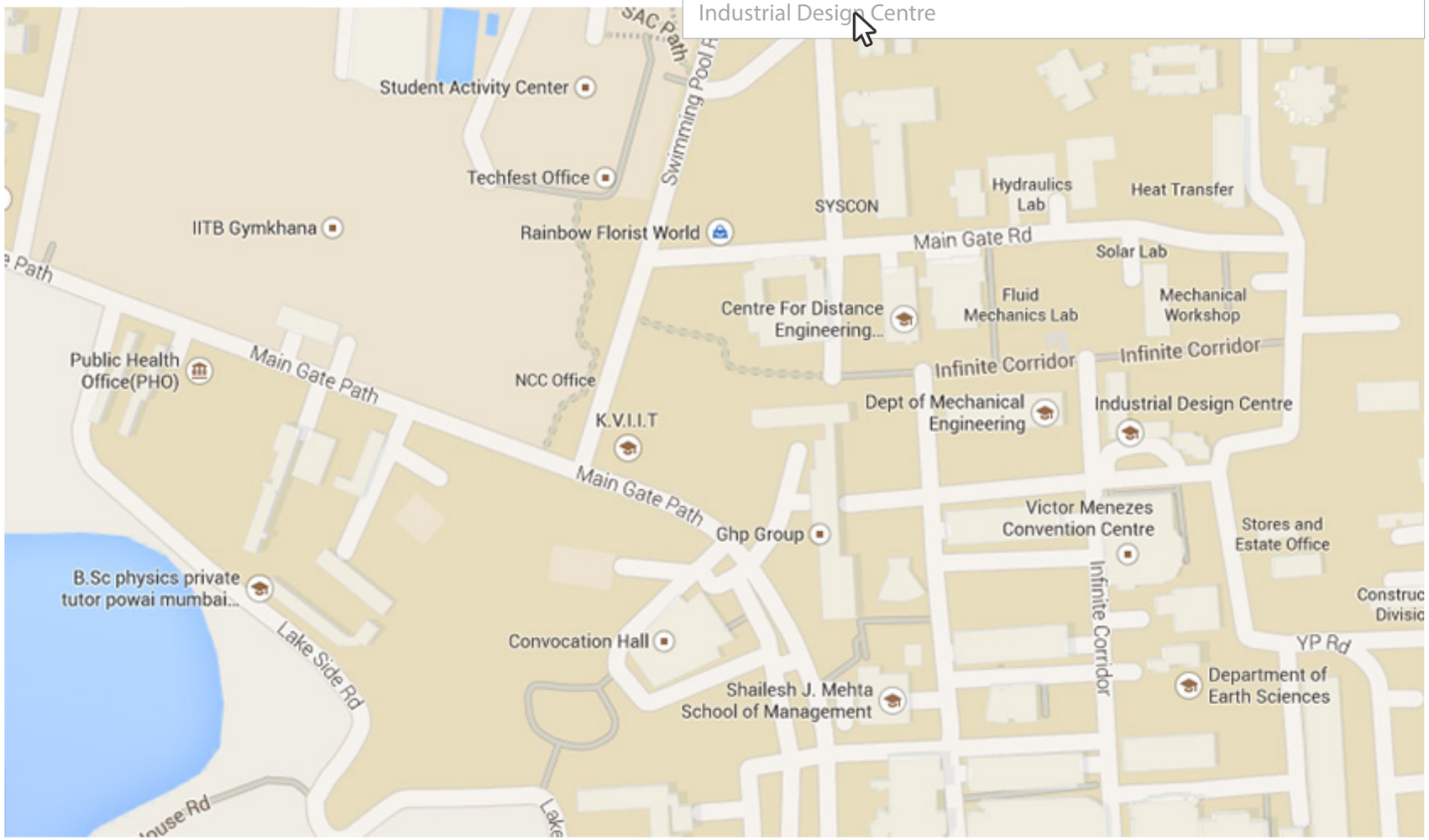
Now 18˚C

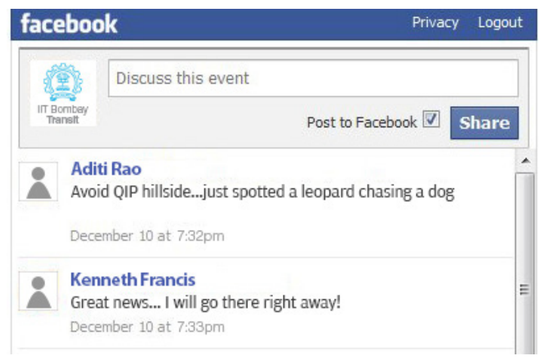
Next 2 hrs 15˚C

From Convocation Hall

To Industr

Industrial Design Centre





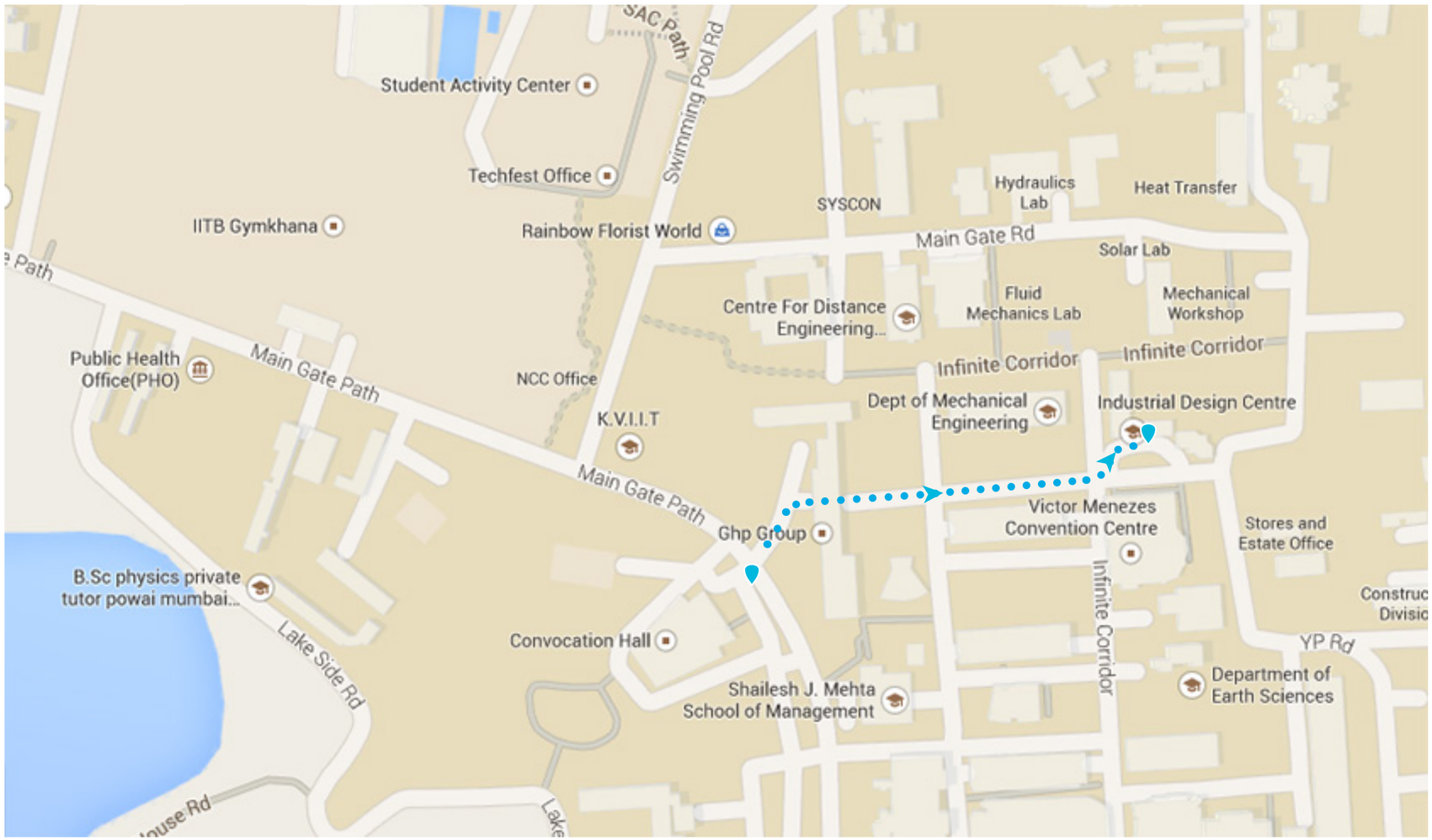
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From Convocation Hall

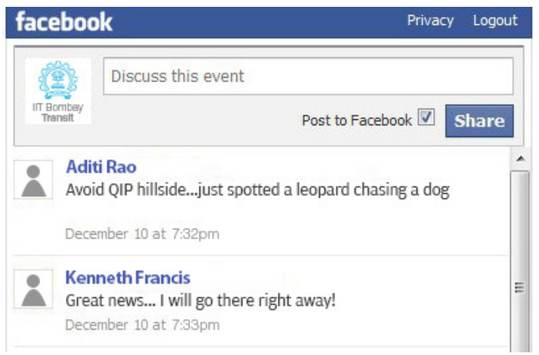
To Industrial Design Centre



Route

Shortest mode of travel: **Walk**

10:25am
Reach Industrial Design Centre



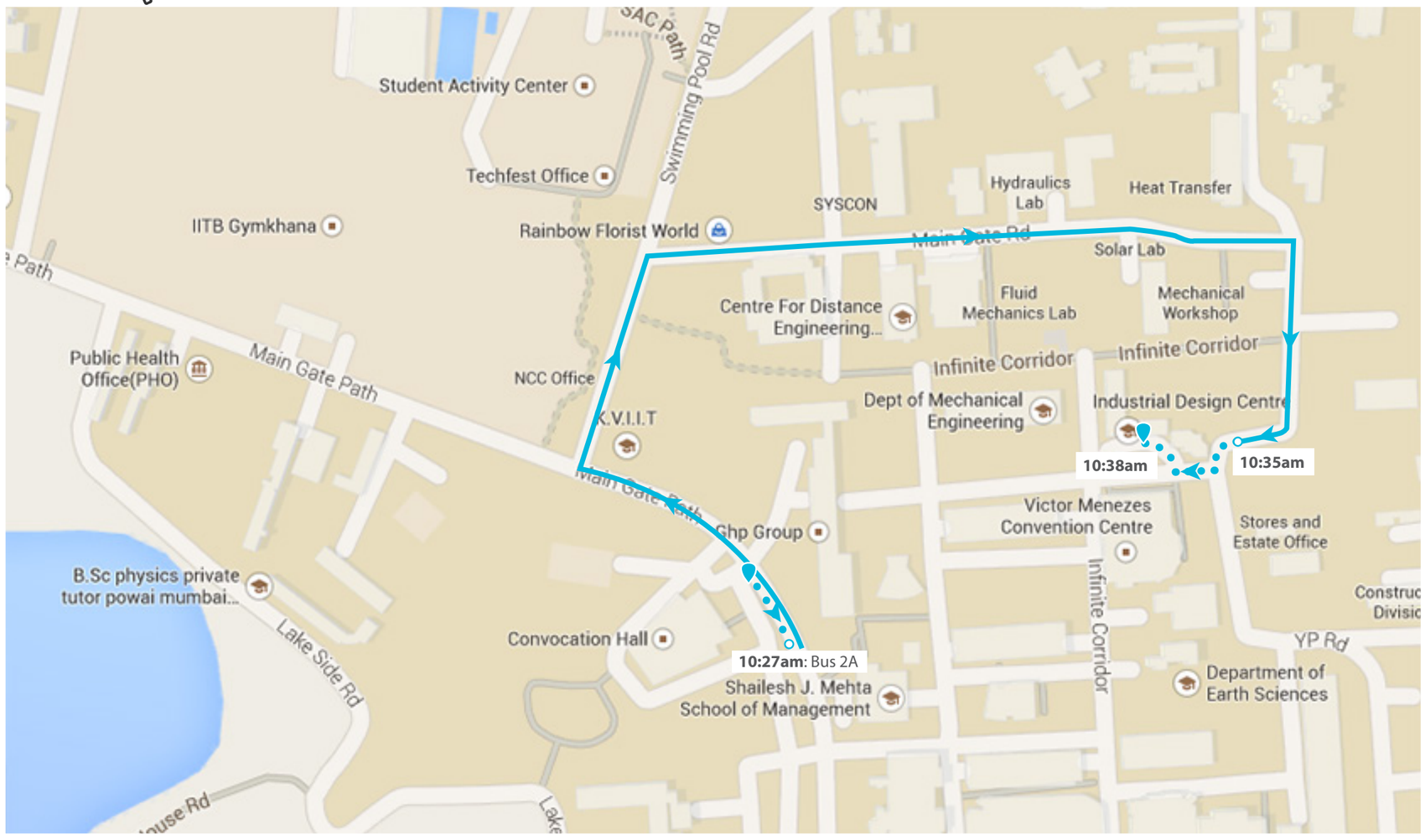
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From Convocation Hall

To Industrial Design Centre



Route

Walk South East
towards Bus Stop near Shailesh J Mehta School of Management

10:27am
Board **Bus 2A**

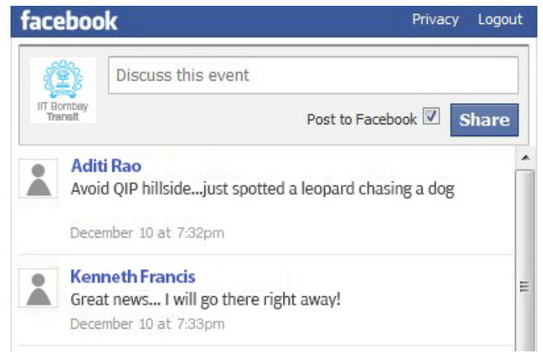
10:35am
Reach bus stop near Shishu Vihar

Walk South West
towards IDC main gate

Turn right

Turn right

10:38am
Reach IDC Main Gate



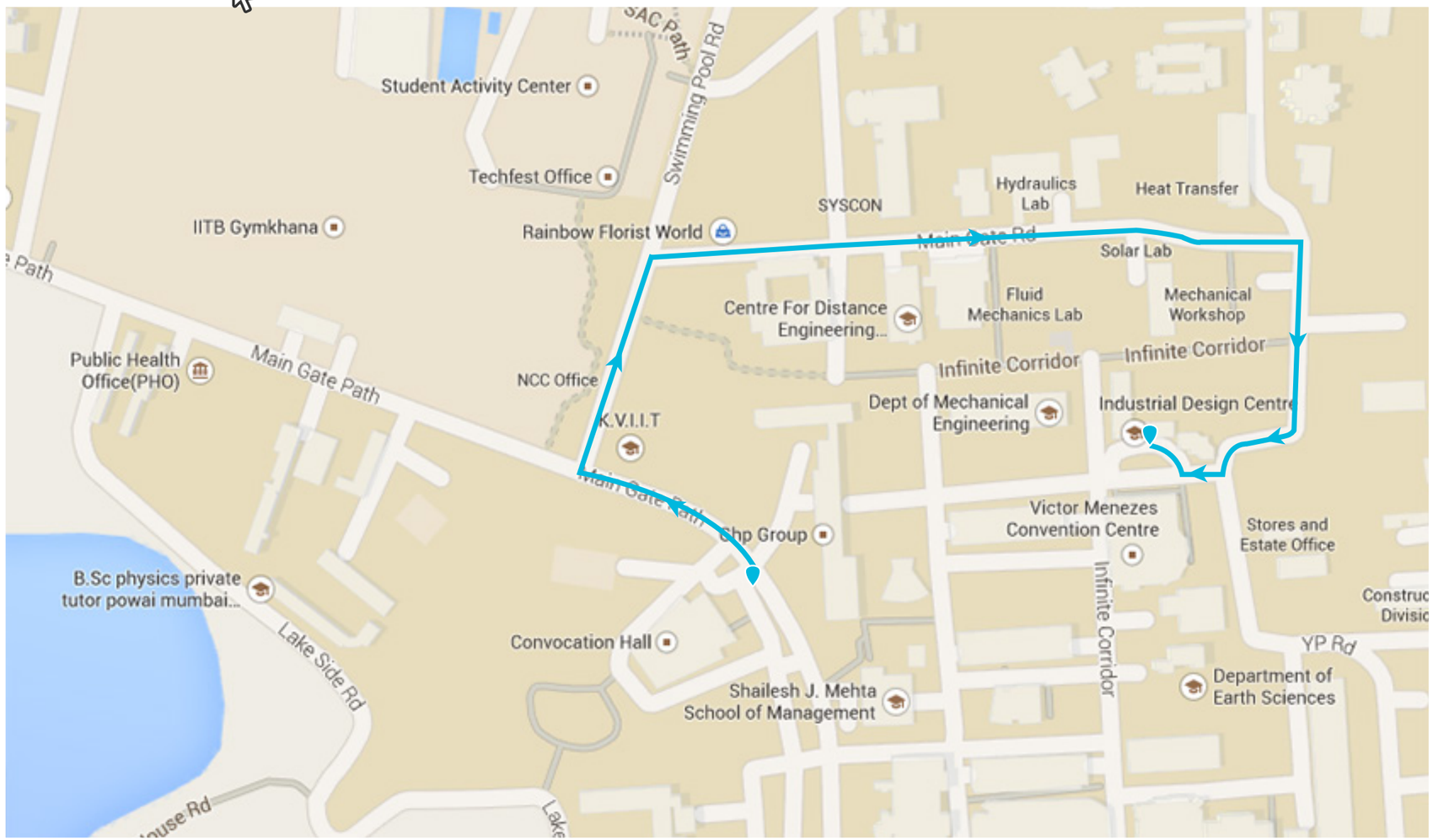
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From Convocation Hall

To Industrial Design Centre



Route

Drive North West

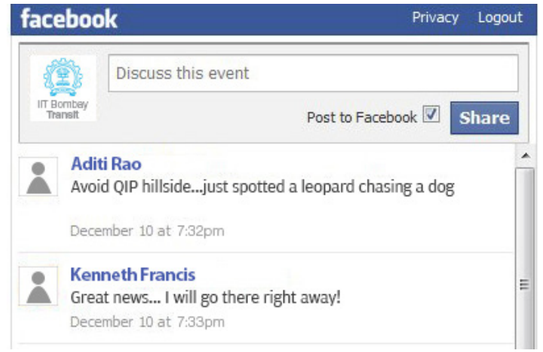
Turn right
towards Swimming Pool Road

Turn right
towards Main Gate Road

Turn right
towards YP Road

Turn right
towards IDC

Turn right
Reach IDC main gate



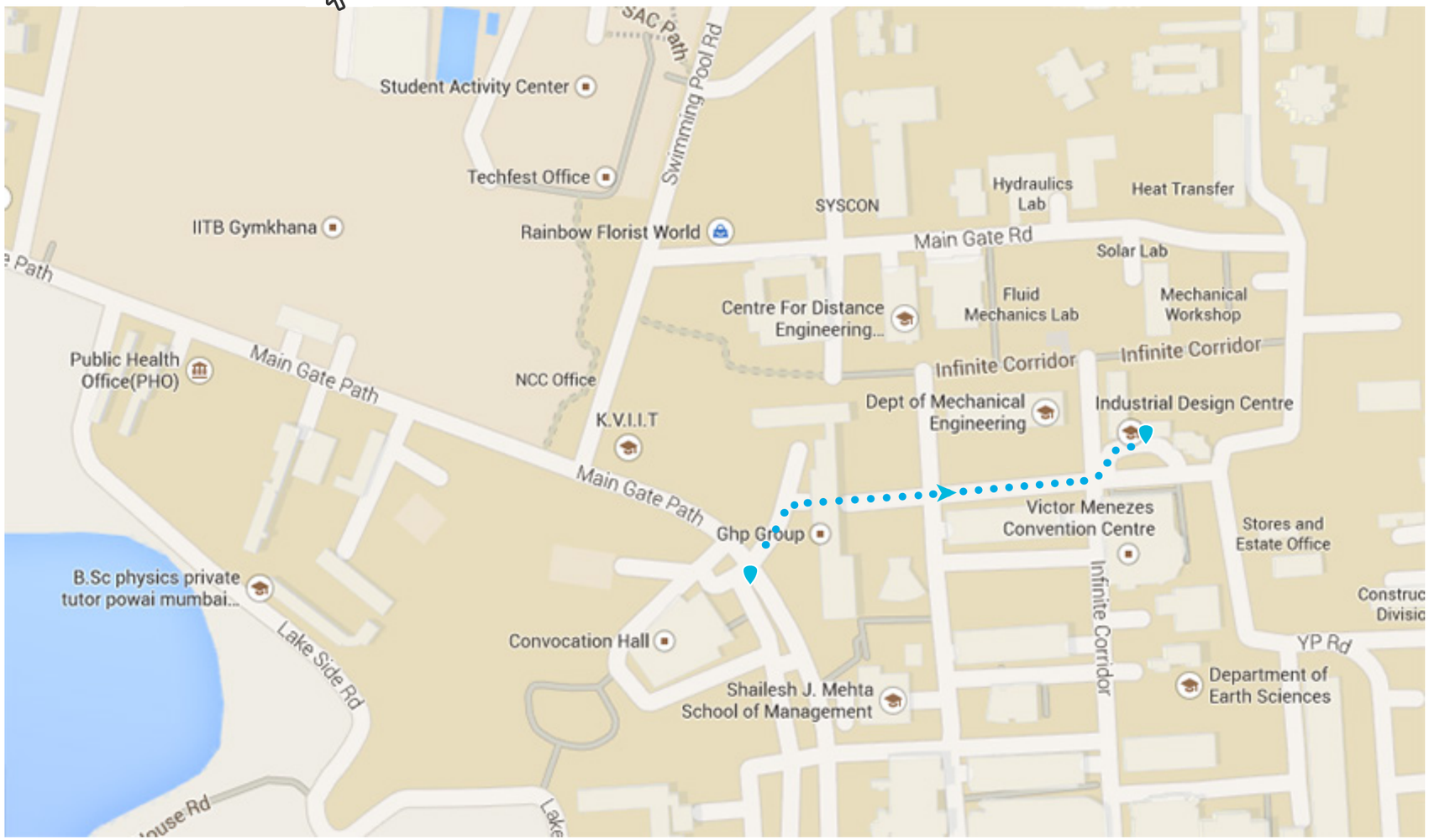
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From: Convocation Hall

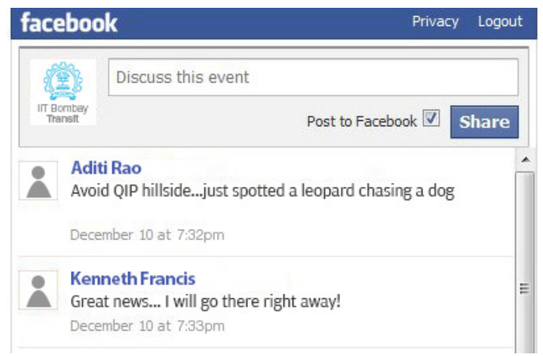
To: Industrial Design Centre



Route

Shortest mode of travel: **Walk**

10:25am
Reach Industrial Design Centre



Scenario 2

Change of route

Input by user : Type
Output to user : Bus route

Assumptions:

i) Device locates user's position from GPS co-ordinates.

ii) Absence of touchscreen input.

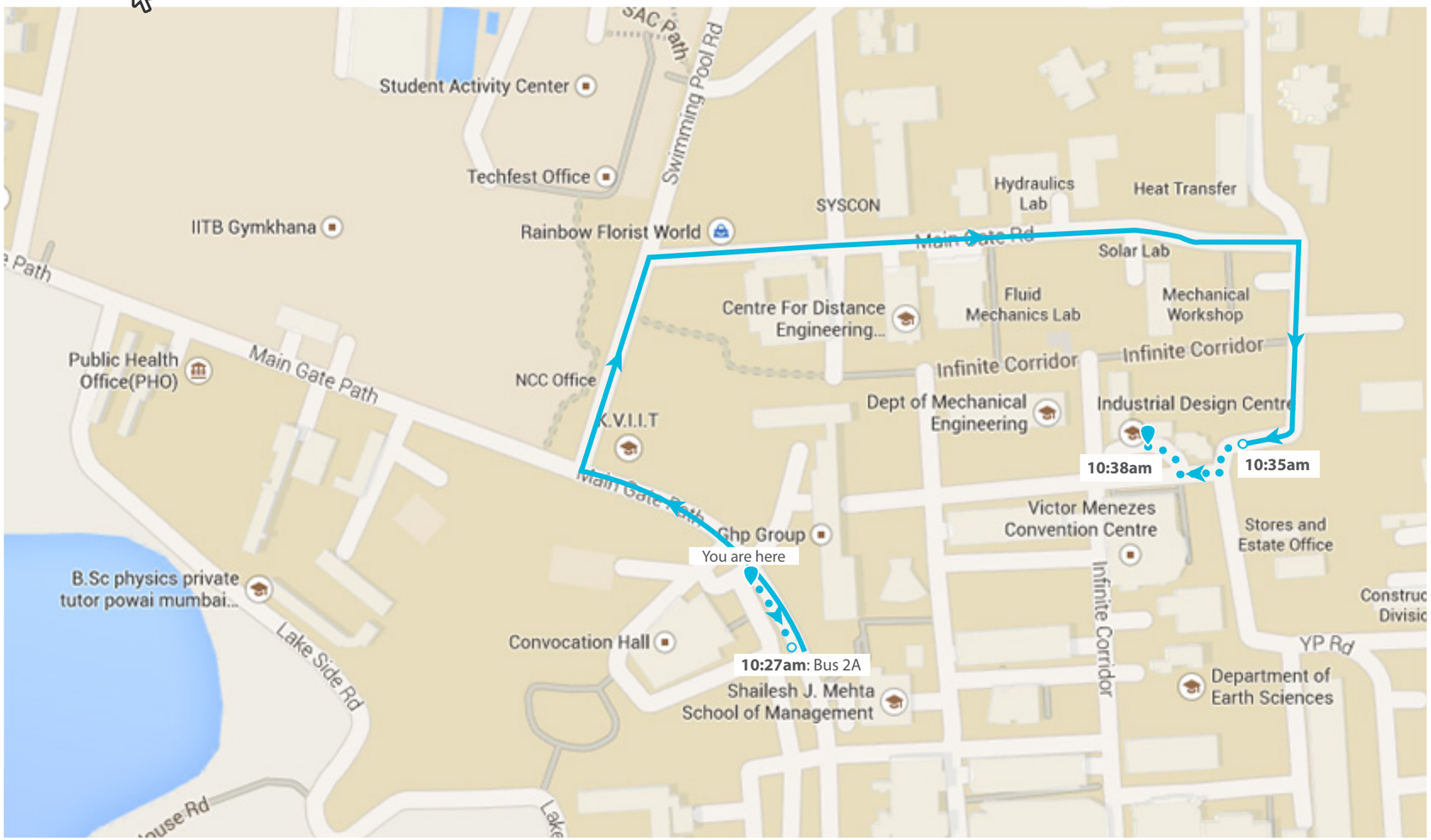
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From: Convocation Hall

To: Industrial Design Centre



Route

Walk South East
towards Bus Stop near Shailesh J Mehta School of Management

10:27am
Board **Bus 2A**

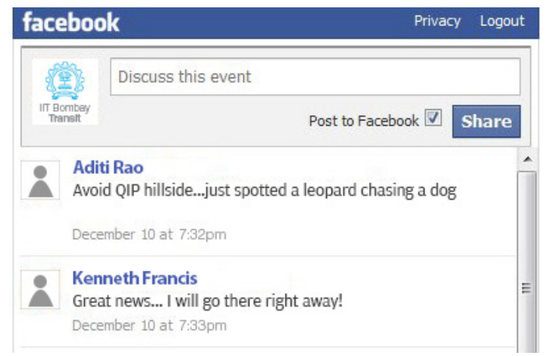
10:35am
Reach bus stop near Shishu Vihar

Walk South West
towards IDC main gate

Turn right

Turn right

10:38am
Reach IDC Main Gate



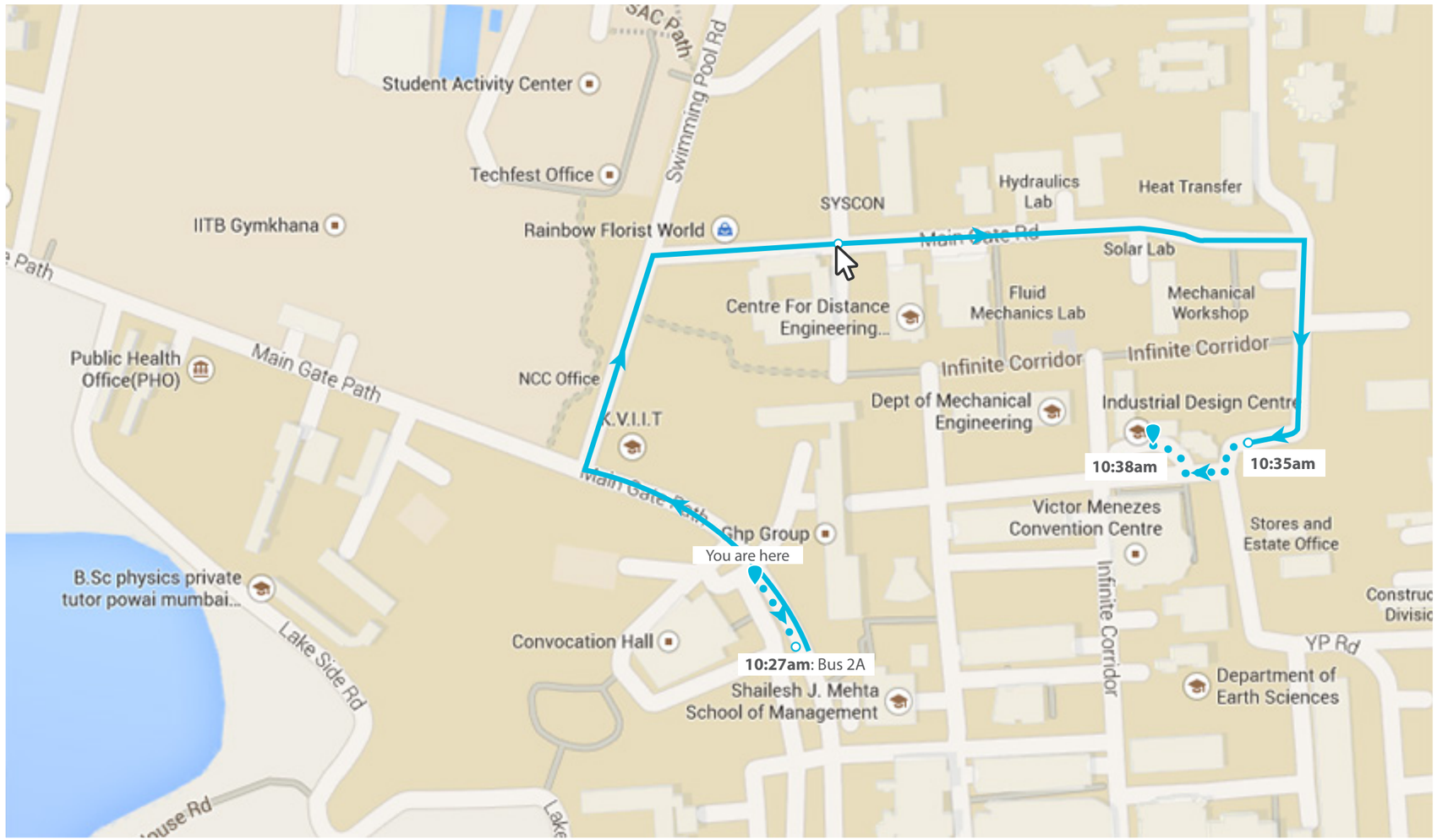
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From: Convocation Hall

To: Industrial Design Centre



Route

Walk South East
towards Bus Stop near Shailesh J Mehta School of Management

10:27am
Board **Bus 2A**

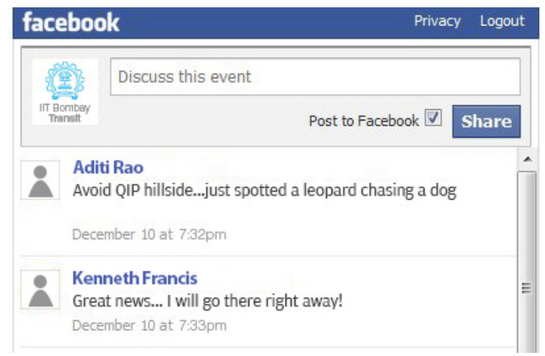
10:35am
Reach bus stop near Shishu Vihar

Walk South West
towards IDC main gate

Turn right

Turn right

10:38am
Reach IDC Main Gate



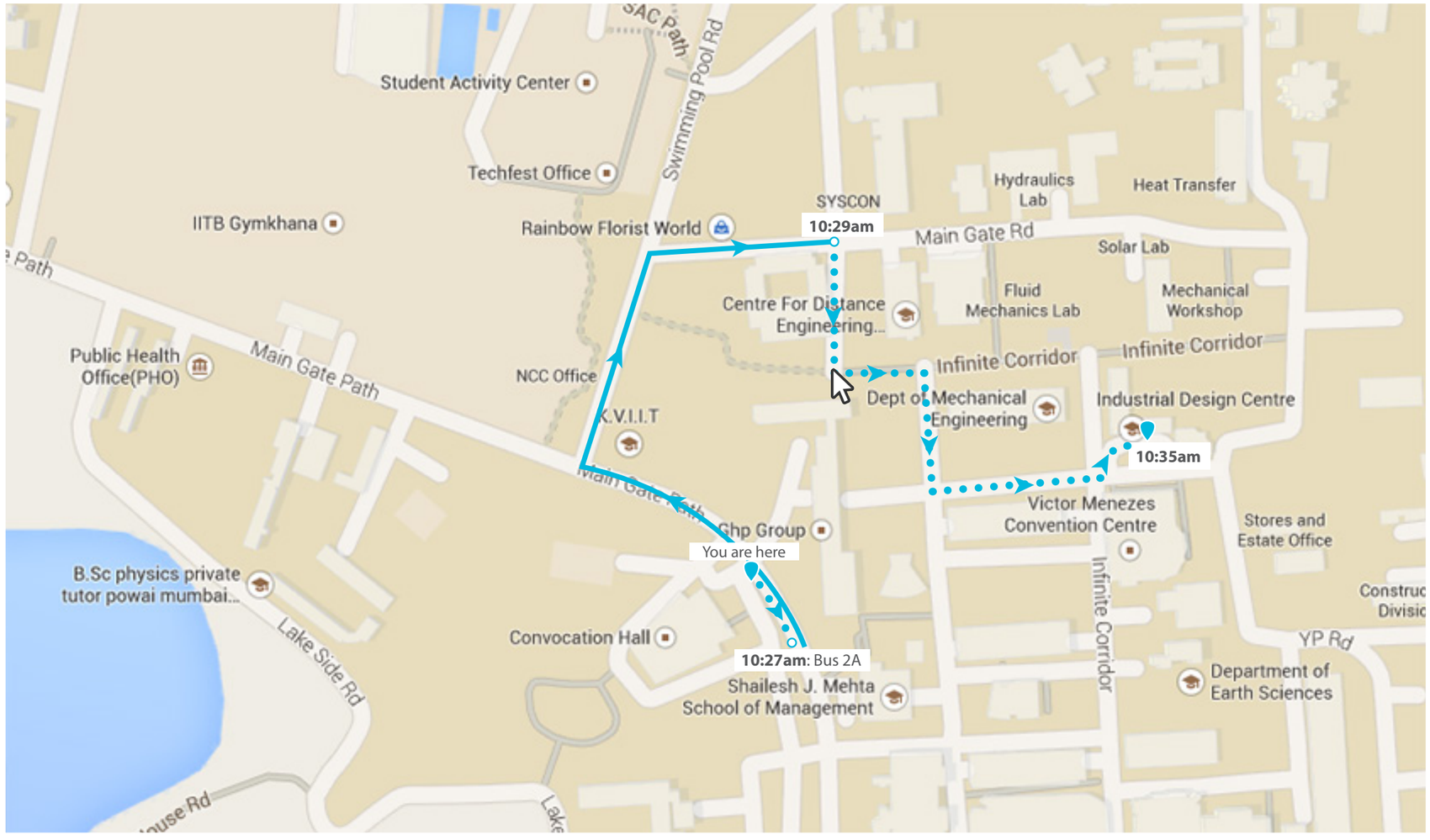
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From: Convocation Hall

To: Industrial Design Centre



Route

Walk South East
towards Bus Stop near Shailesh J Mehta School of Management

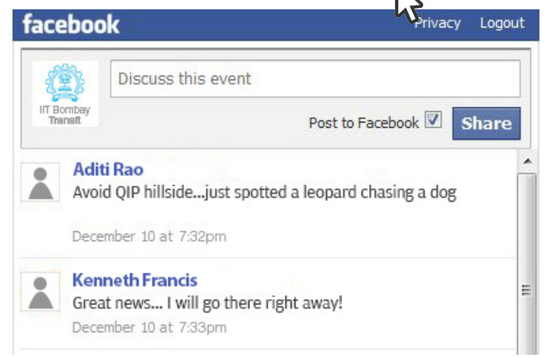
10:27am
Board **Bus 2A**

10:29am
Reach bus stop near SYSCON

Walk South
towards Infinite Corridor

Turn left

Turn right



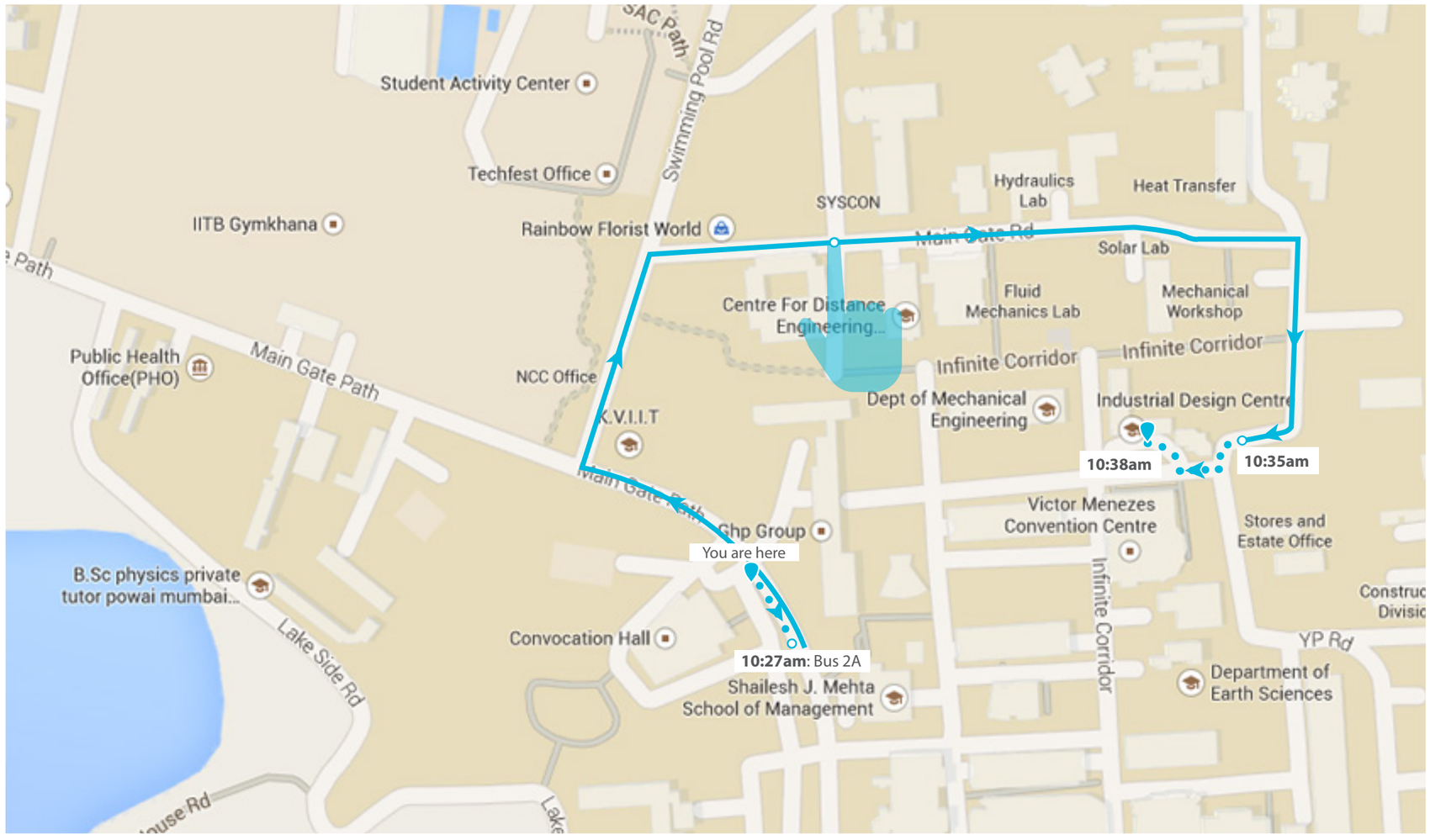
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From Convocation Hall

To Industrial Design Centre



Route

Walk South East
towards Bus Stop near Shailesh J Mehta School of Management

10:27am
Board **Bus 2A**

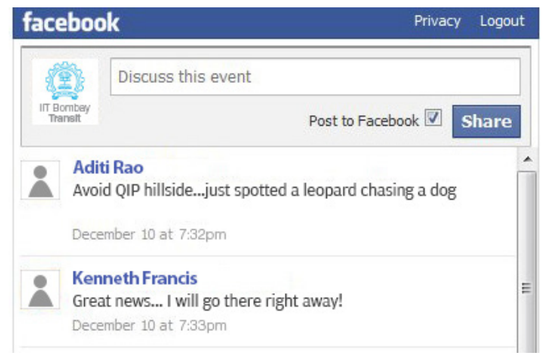
10:35am
Reach bus stop near Shishu Vihar

Walk South West
towards IDC main gate

Turn right

Turn right

10:38am
Reach IDC Main Gate



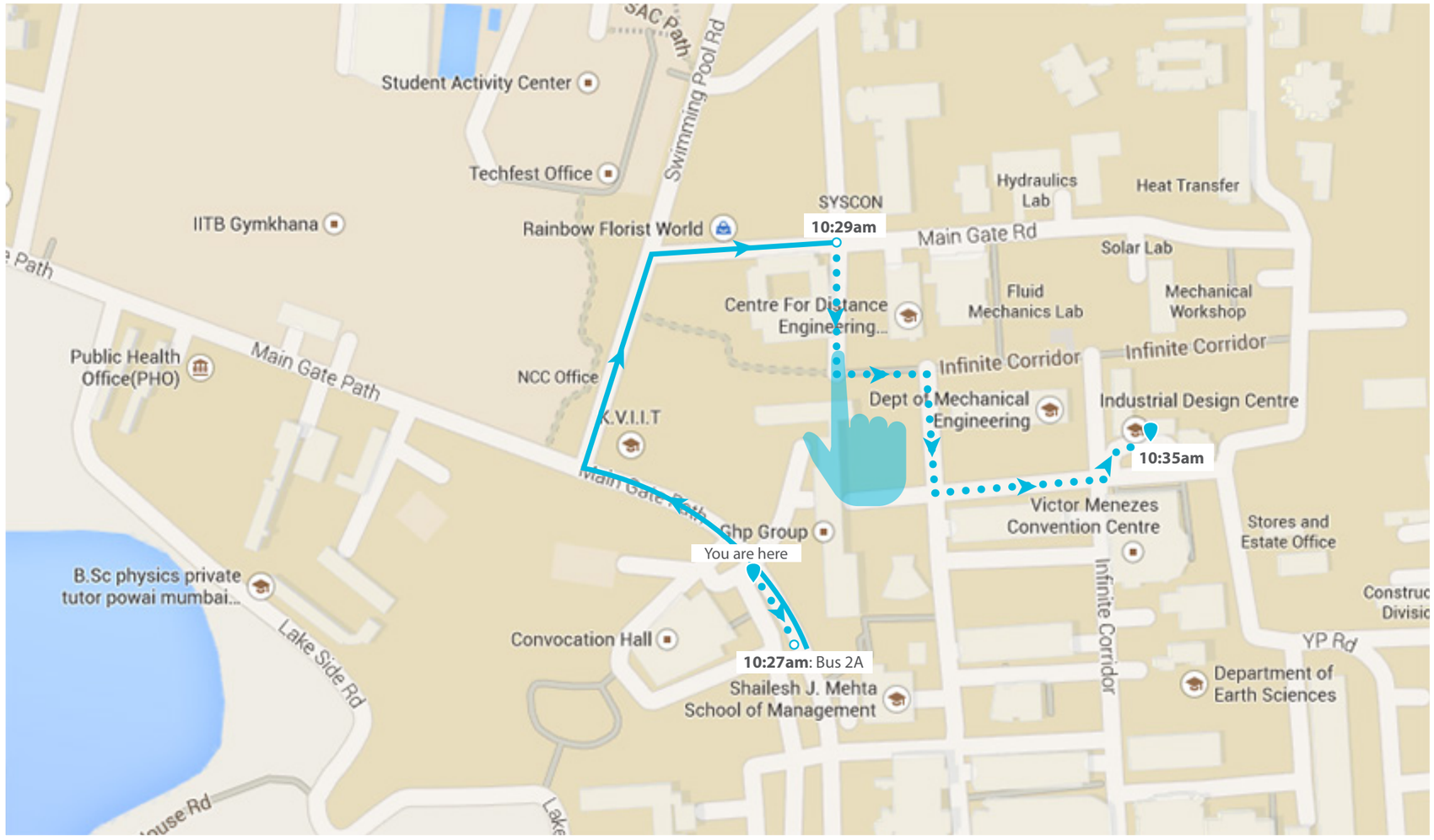
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From Convocation Hall

To Industrial Design Centre



Route

Walk South East
towards Bus Stop near Shailesh J Mehta School of Management

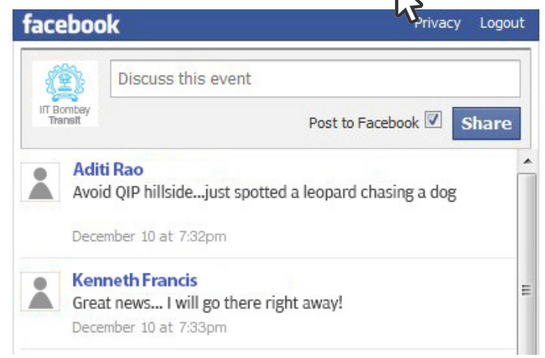
10:27am
Board **Bus 2A**

10:29am
Reach bus stop near SYSCON

Walk South
towards Infinite Corridor

Turn left

Turn right



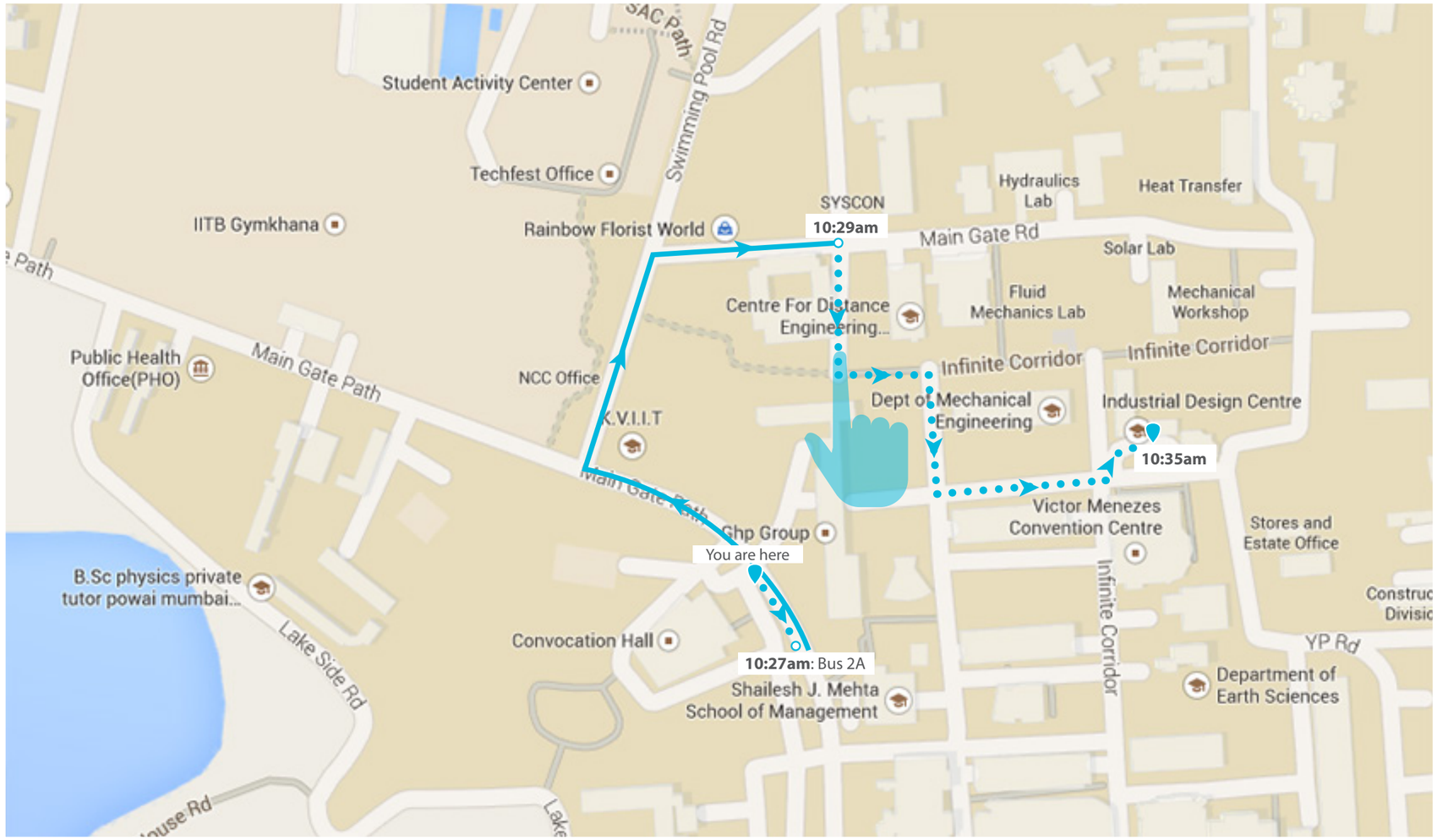
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From: Convocation Hall

To: Industrial Design Centre



Route

10:27am
Board **Bus 2A**

10:29am
Reach bus stop near SYSCON

Walk South
towards Infinite Corridor

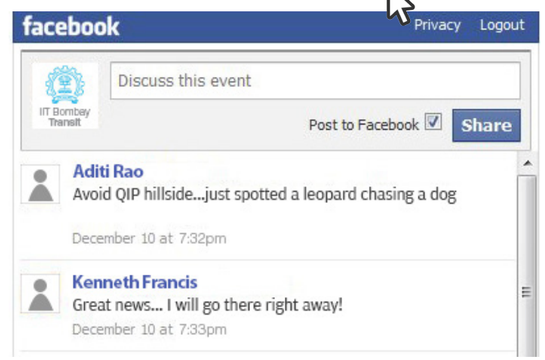
Turn left

Turn right

Climb stairs

Walk South

Turn left



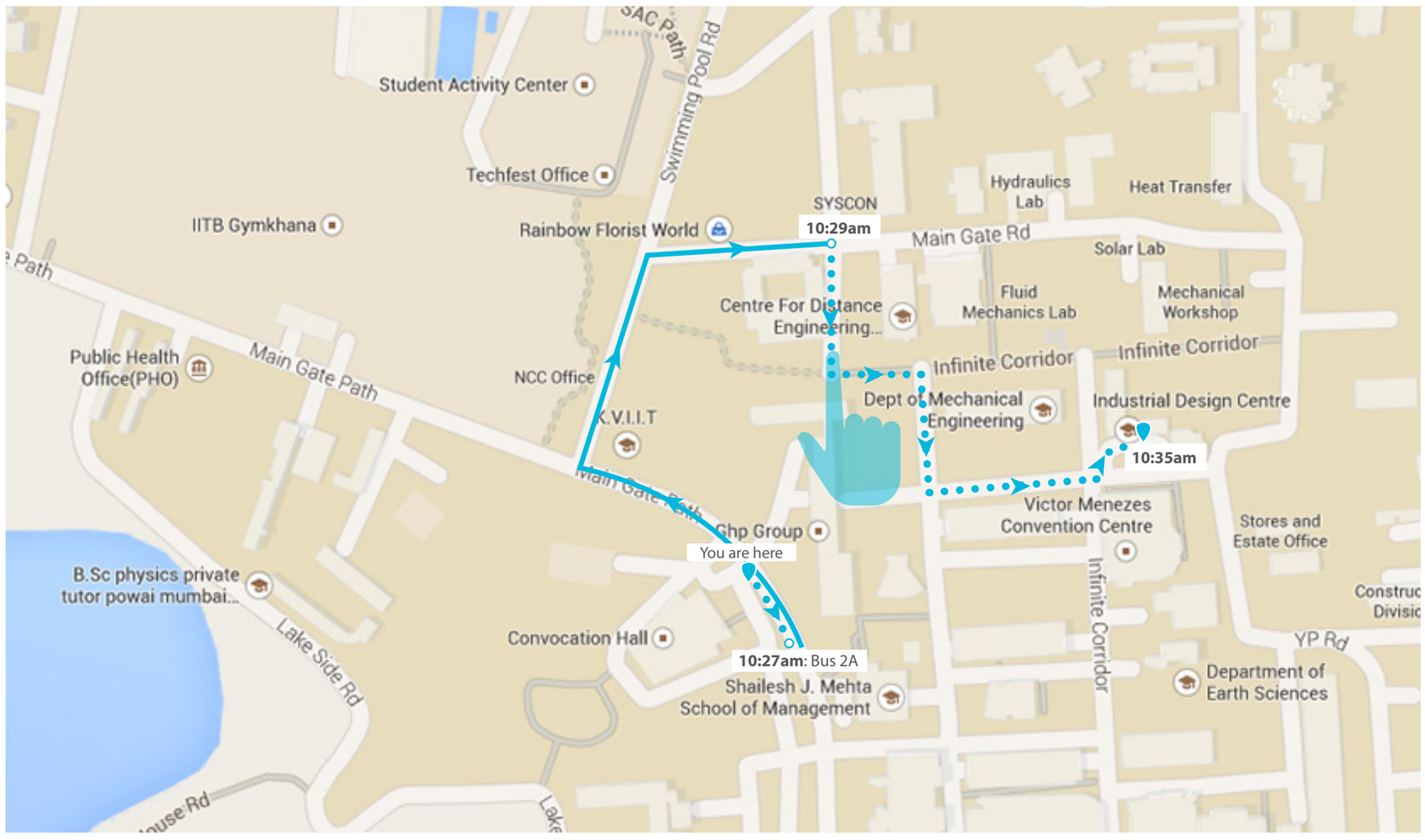
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From: Convocation Hall

To: Industrial Design Centre



Route

Walk South
towards Infinite Corridor

Turn left

Turn right

Climb stairs

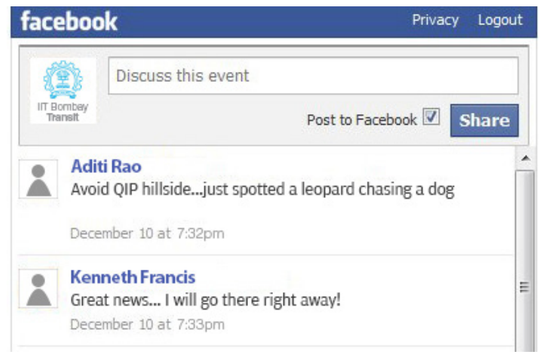
Walk South

Turn left

Walk East

Turn left

10.35am
Reach IDC Main Entrance



Scenario 3

Input by user : Type
Output to user : Default route

Assumptions:
i) Device locates user's position from GPS co-ordinates.
ii) Absence of touchscreen input.

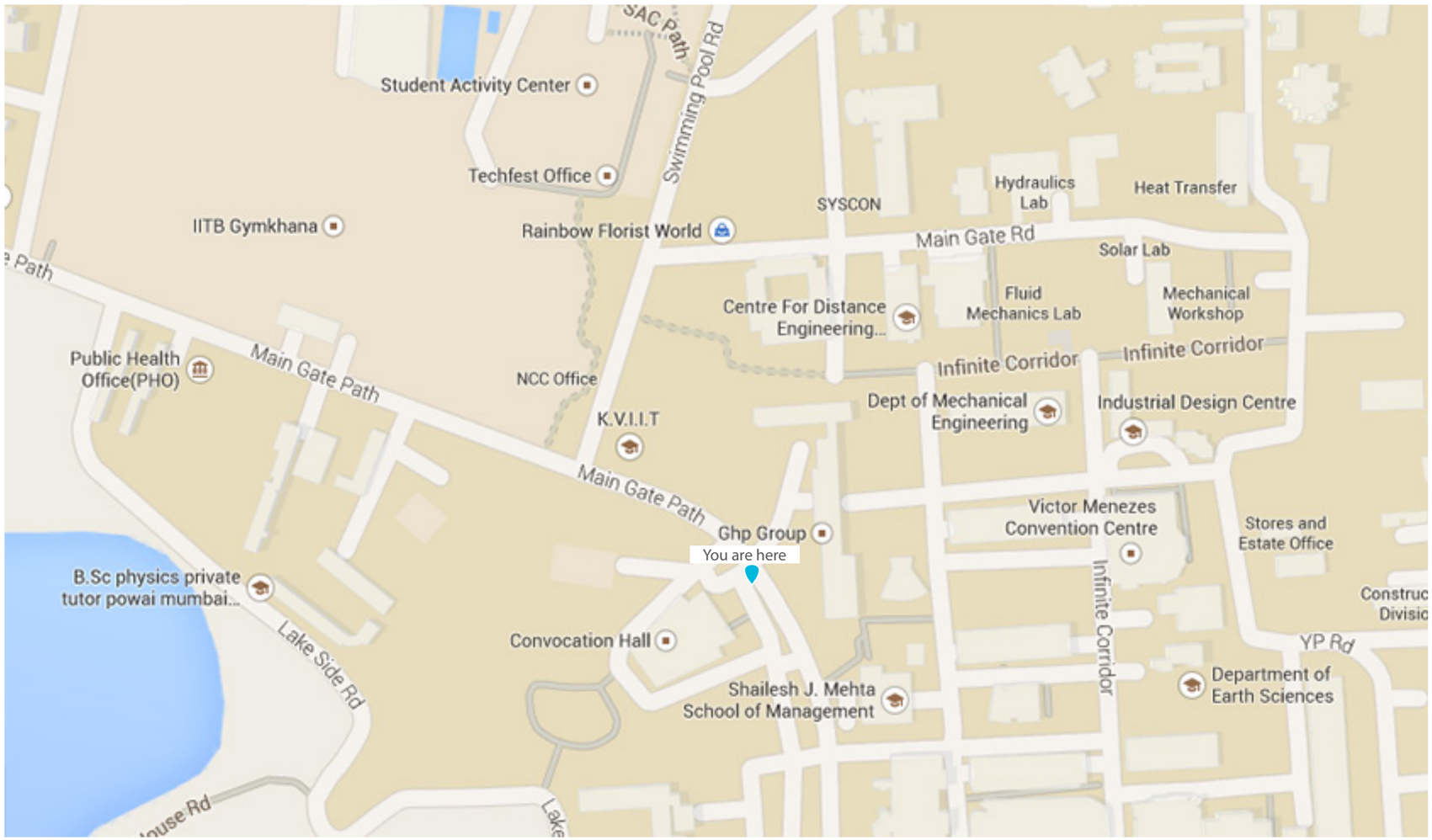
IIT Bombay
Transit

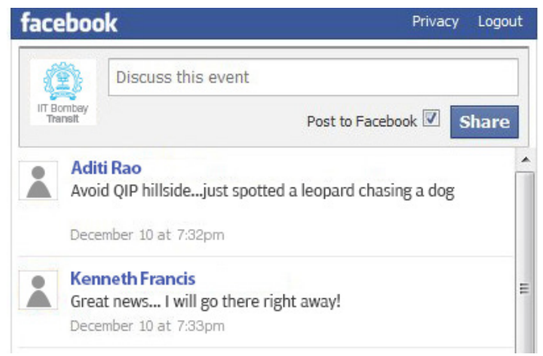
Now 18˚C

Next 2 hrs 15˚C

From Convocation Hall

To Type destination here or click on the map





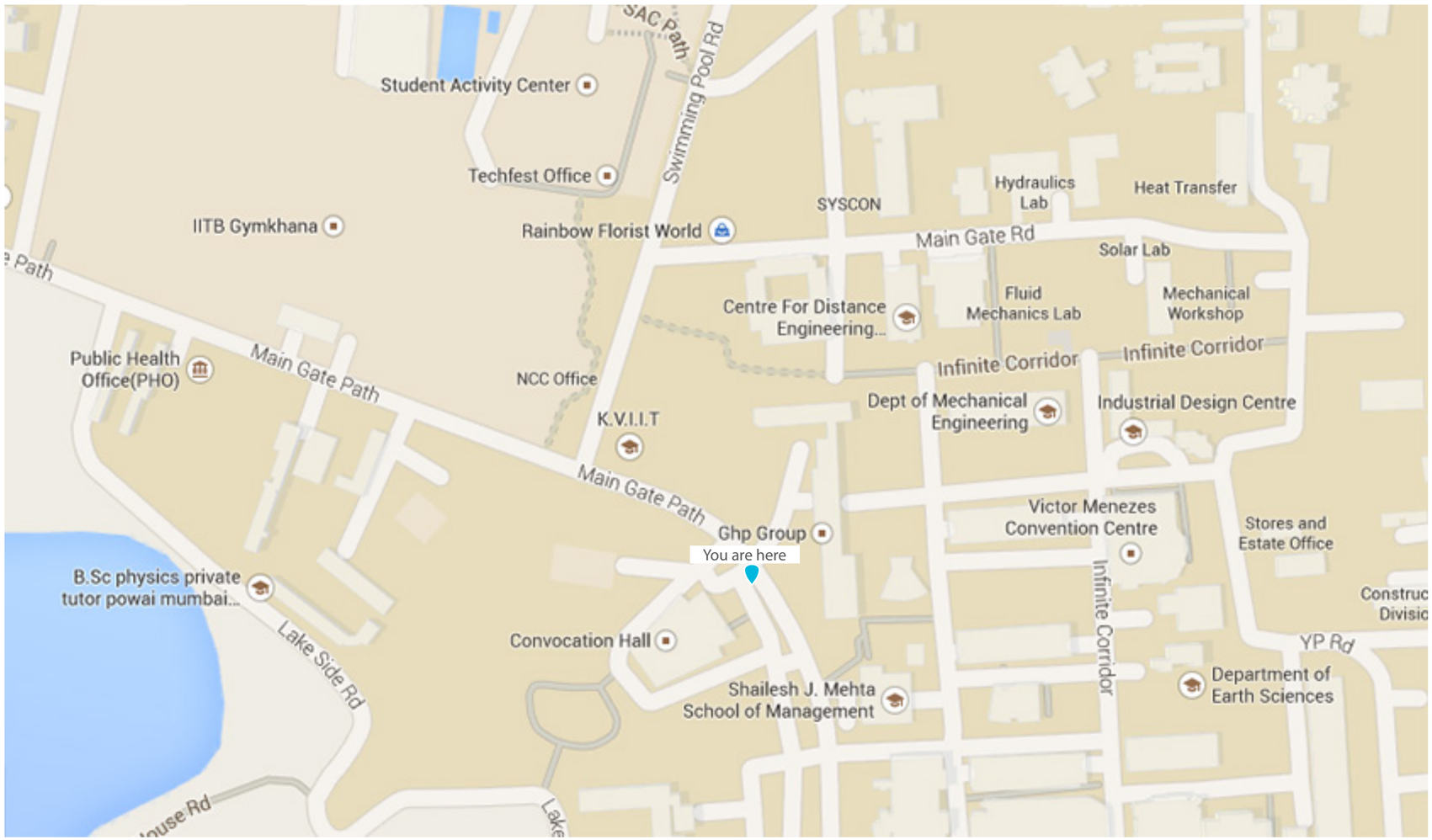
IIT Bombay
Transit

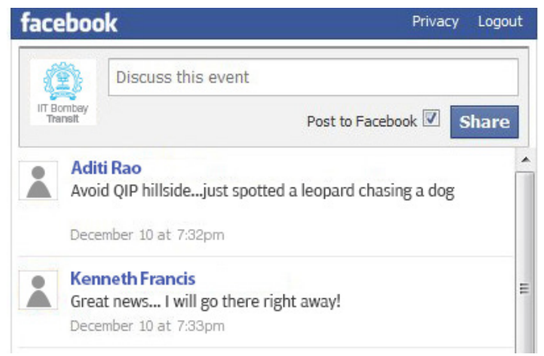
Now 18˚C

Next 2 hrs 15˚C

From Convocation Hall

To |





IIT Bombay
Transit

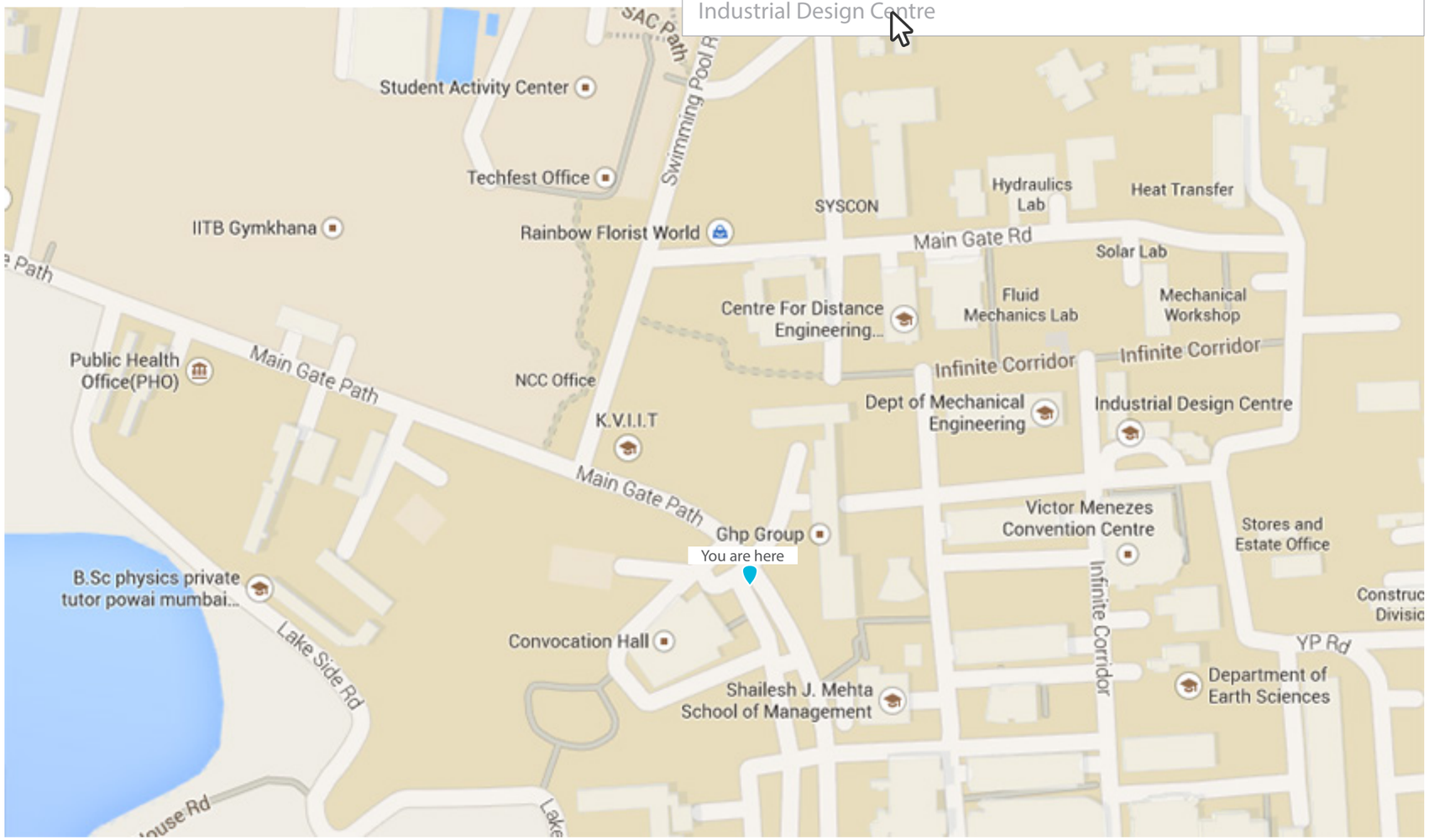
Now 18˚C

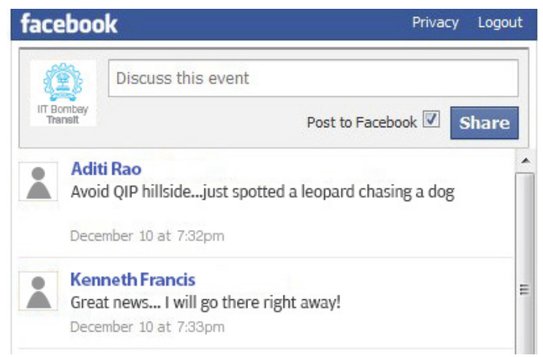
Next 2 hrs 15˚C

From Convocation Hall

To Industrial Des

Industrial Design Centre





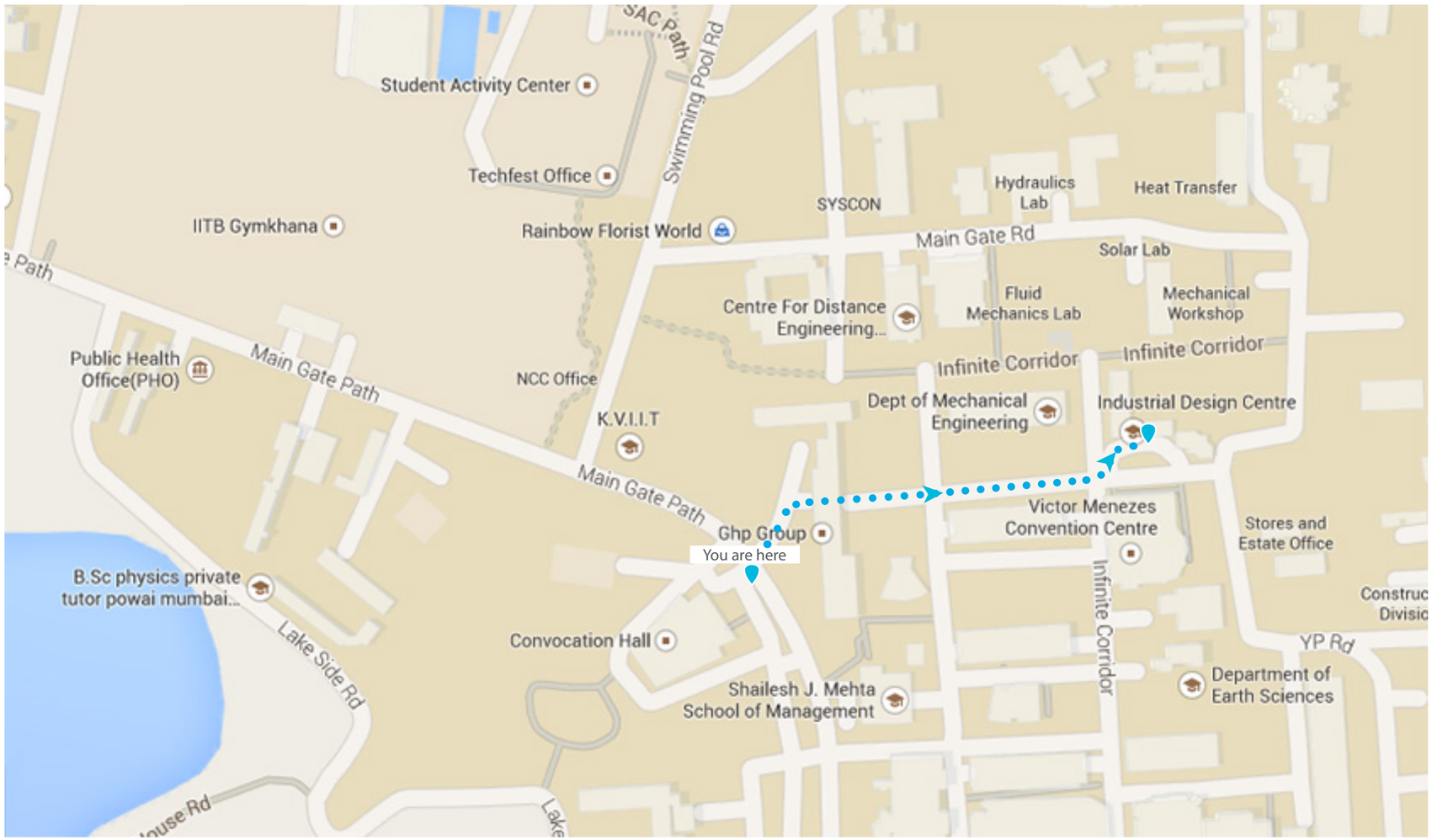
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From: Convocation Hall

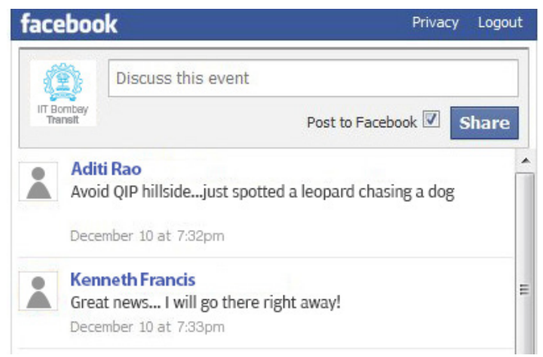
To: Industrial Design Centre



Route

Shortest mode of travel: **Walk**

10:25am
Reach Industrial Design Centre



Scenario 4

Input by user : Click
Output to user : Default route

Assumptions:
i) Device locates user's position from GPS co-ordinates.
ii) Absence of touchscreen input.

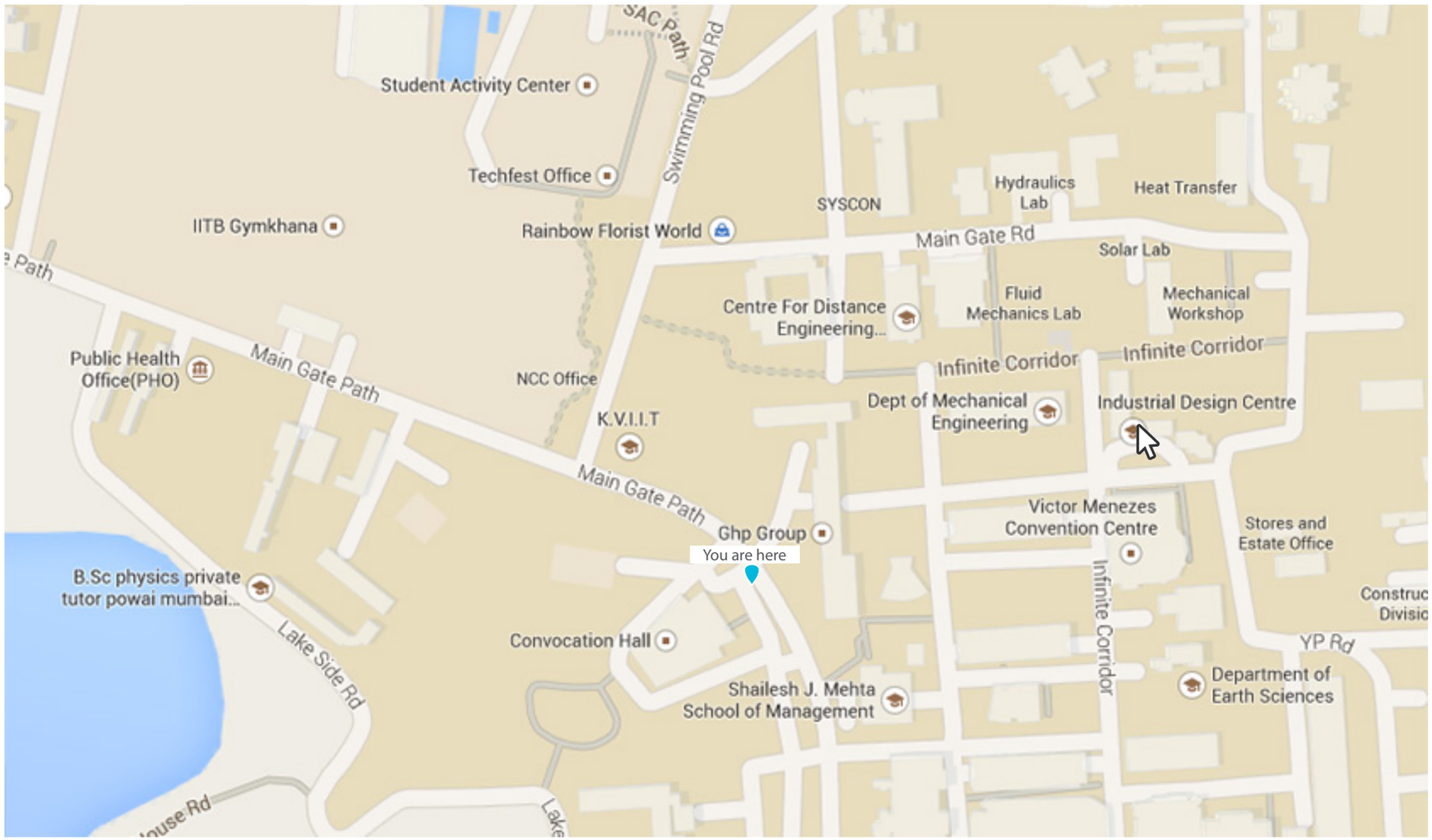
IIT Bombay
Transit

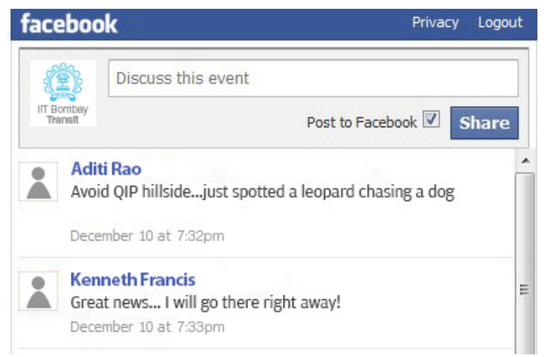
Now 18˚C

Next 2 hrs 15˚C

From Convocation Hall

To Type destination here or click on the map





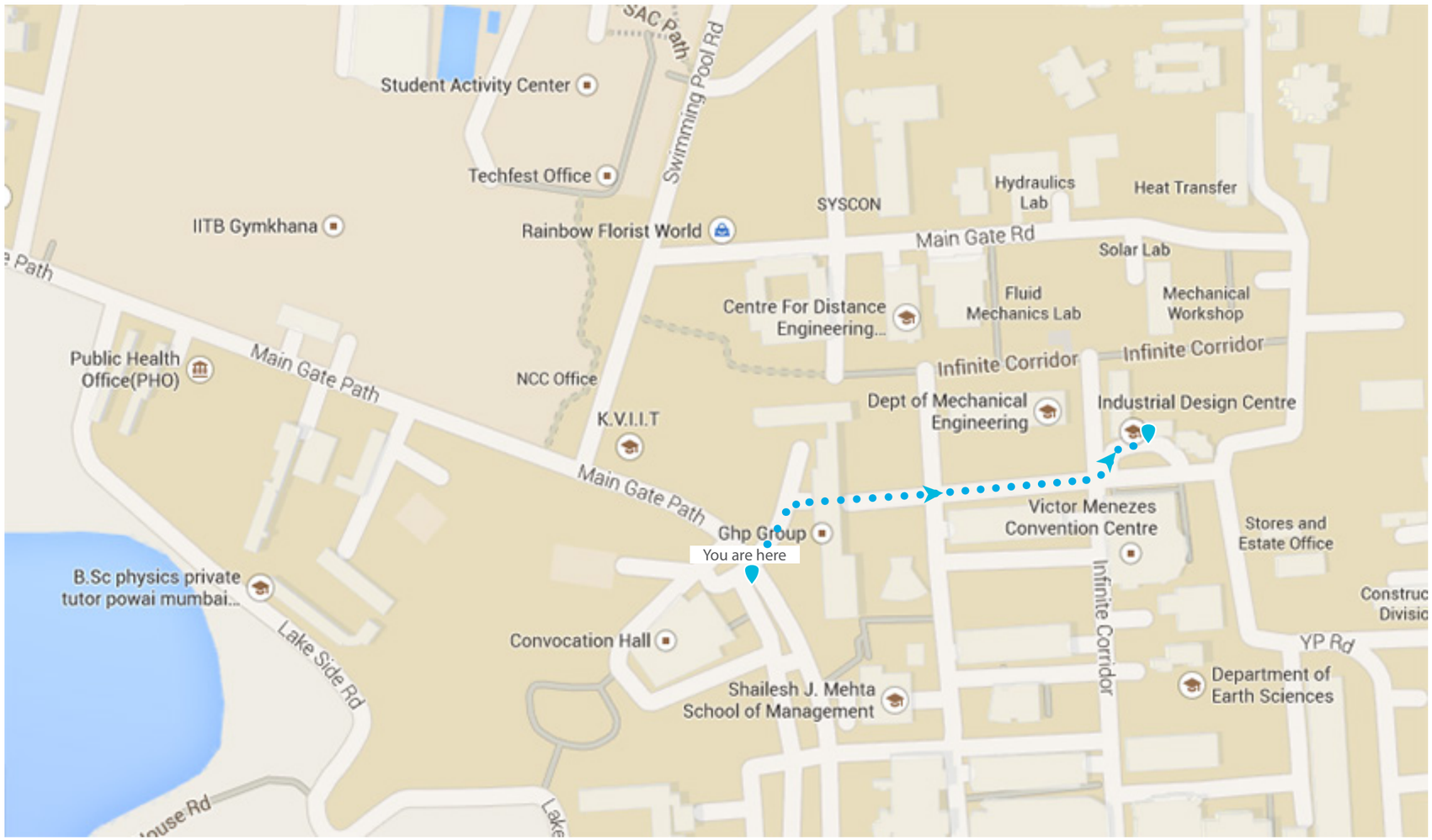
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From: Convocation Hall

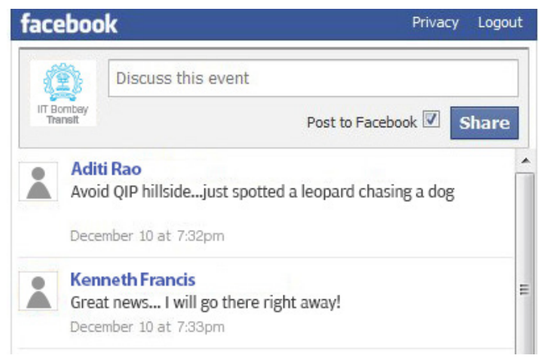
To: Industrial Design Centre



Route

Shortest mode of travel: **Walk**

10:25am
Reach Industrial Design Centre



Scenario 5

Input by user : Touchscreen
Output to user : Default route

Assumptions:
i) Device locates user's position from GPS co-ordinates.
ii) Presence of touchscreen input.

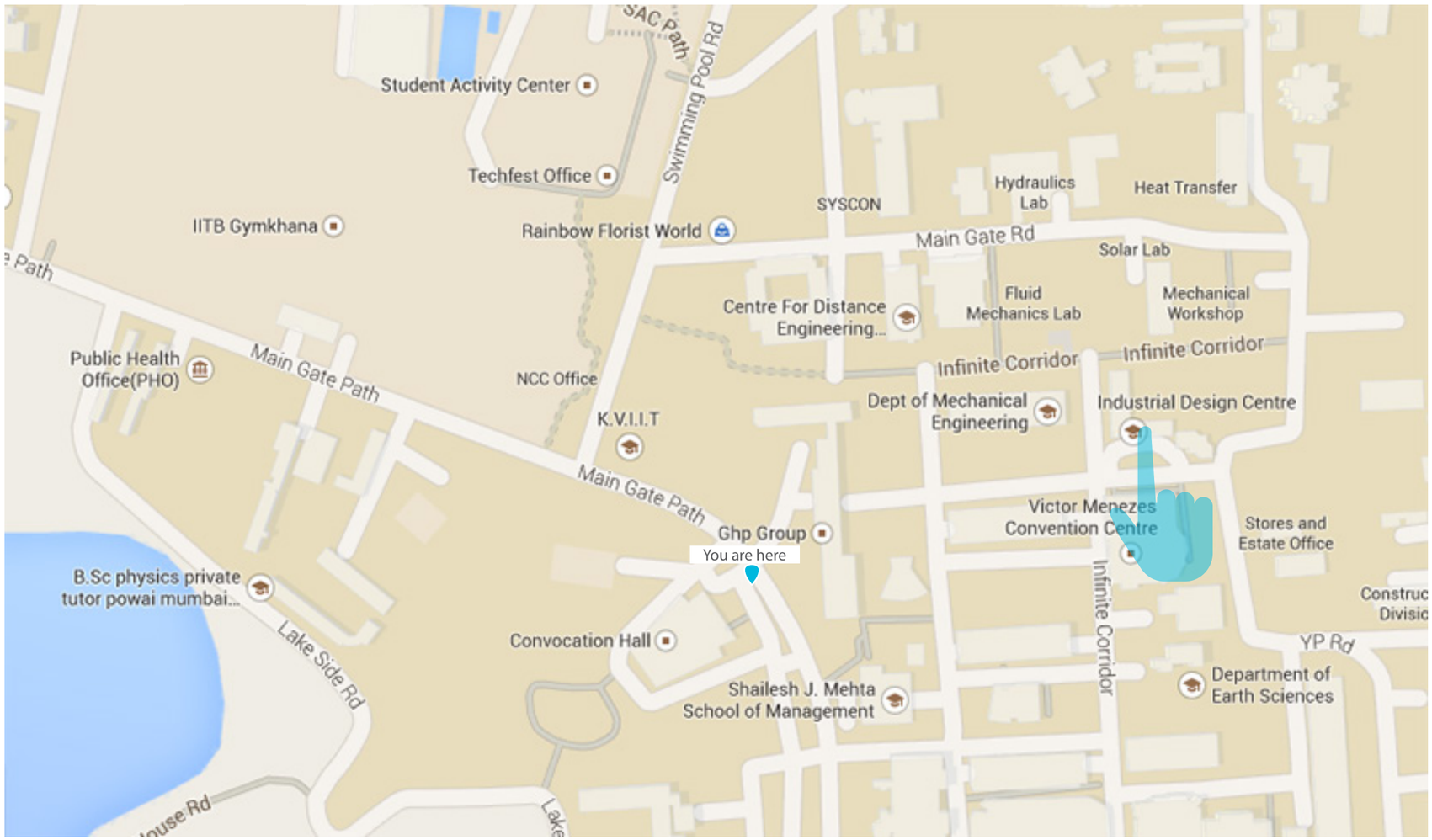
IIT Bombay
Transit

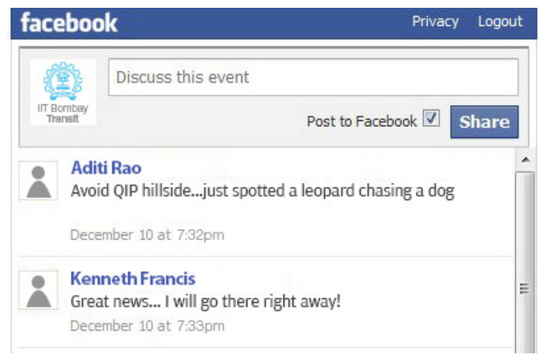
Now 18˚C

Next 2 hrs 15˚C

From Convocation Hall

To Type destination here or click on the map





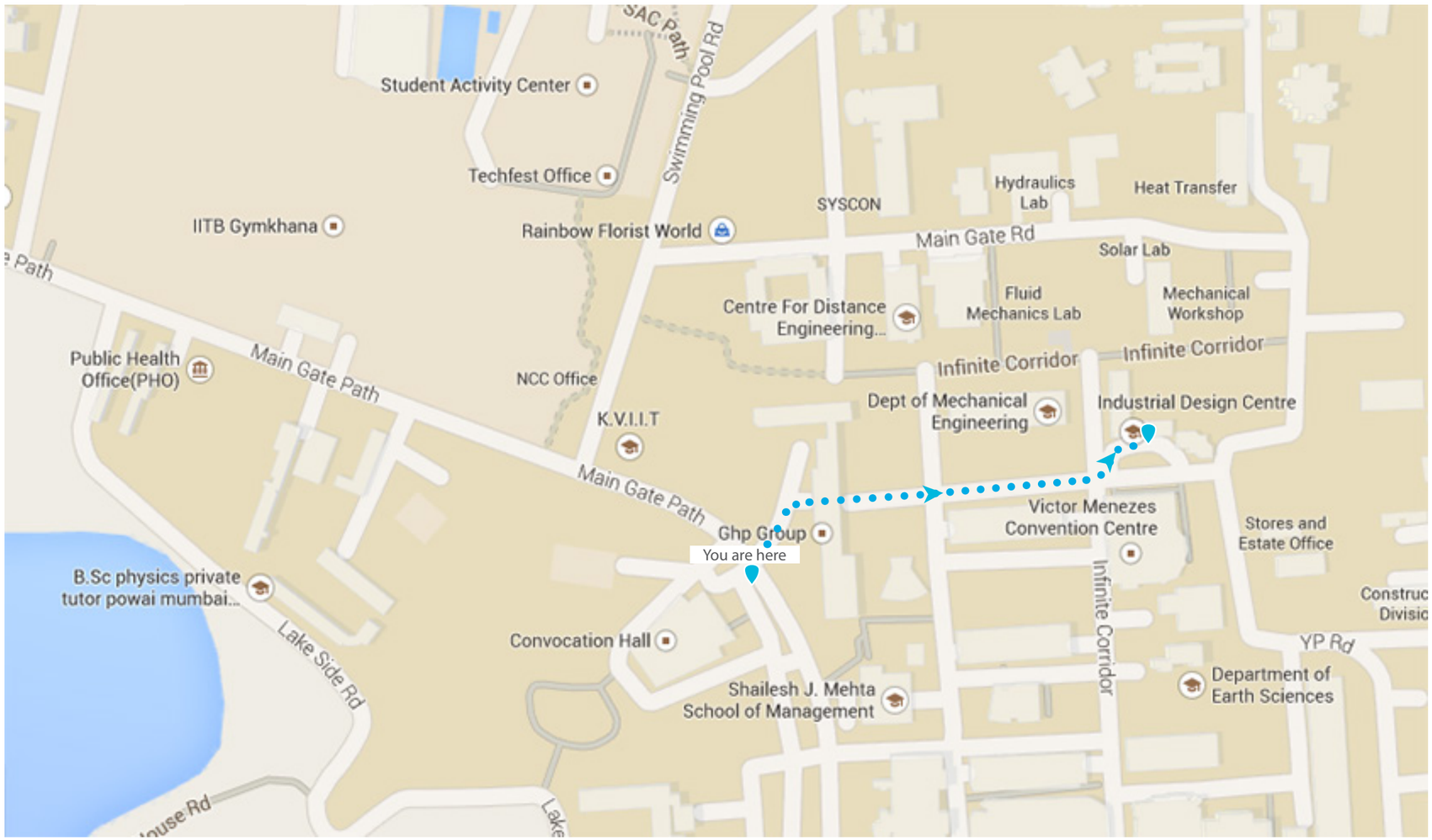
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From: Convocation Hall

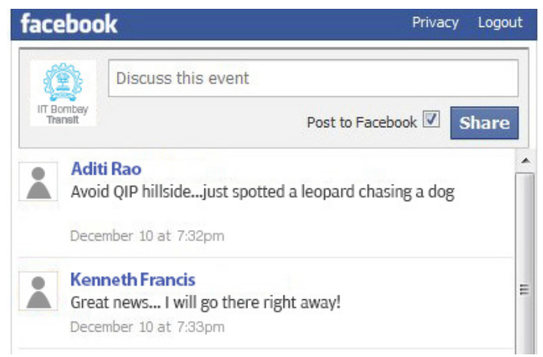
To: Industrial Design Centre



Route

Shortest mode of travel: **Walk**

10:25am
Reach Industrial Design Centre



Scenario 6

Input by user : Touchscreen
Output to user : Default route

Assumptions:
i) Absence of GPS.
ii) Presence of touchscreen input.

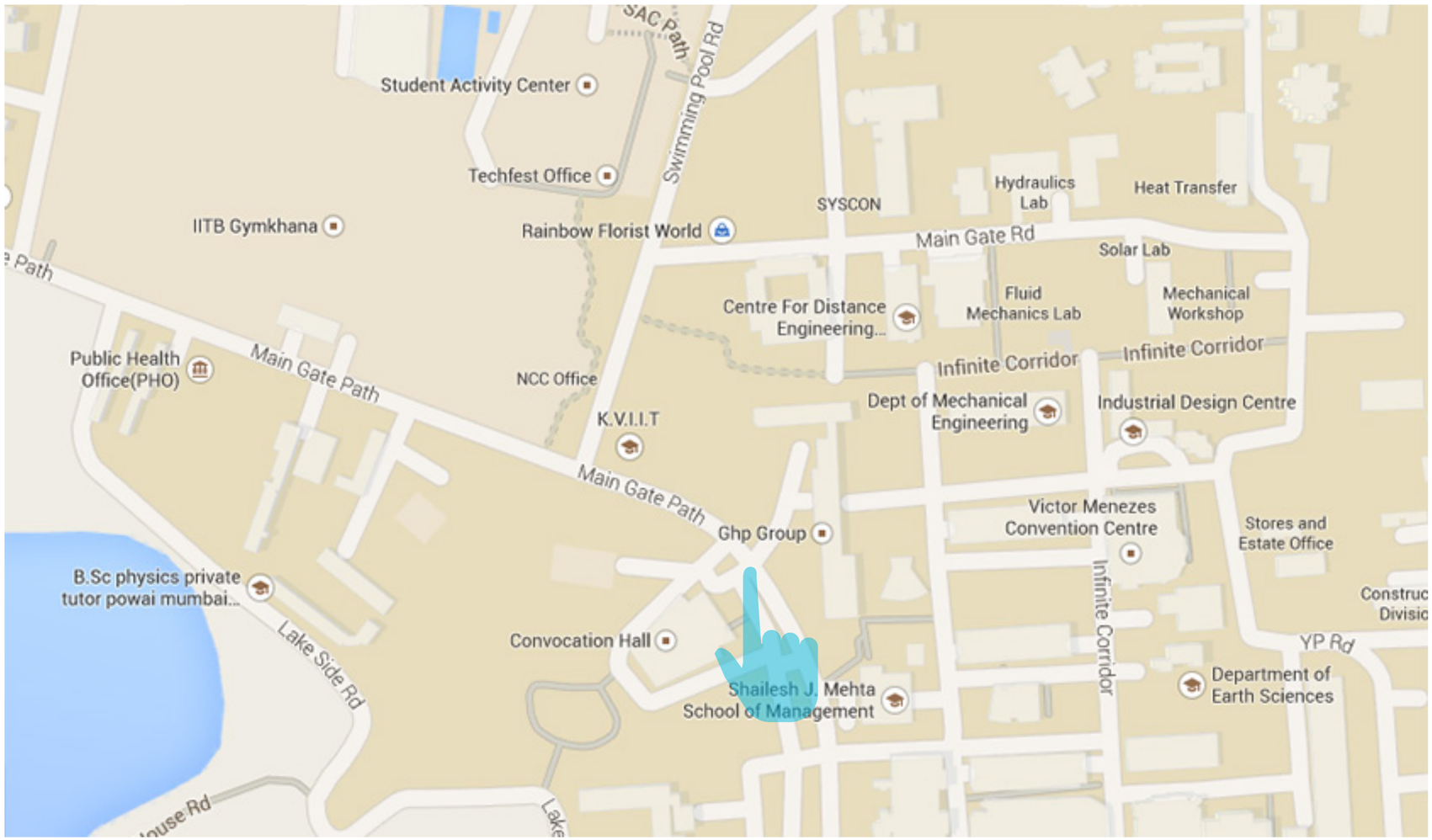
IIT Bombay
Transit

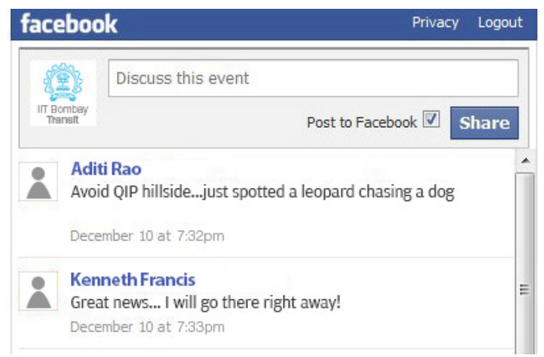
Now 18˚C

Next 2 hrs 15˚C

From Type destination here or click on the map

To Type destination here or click on the map





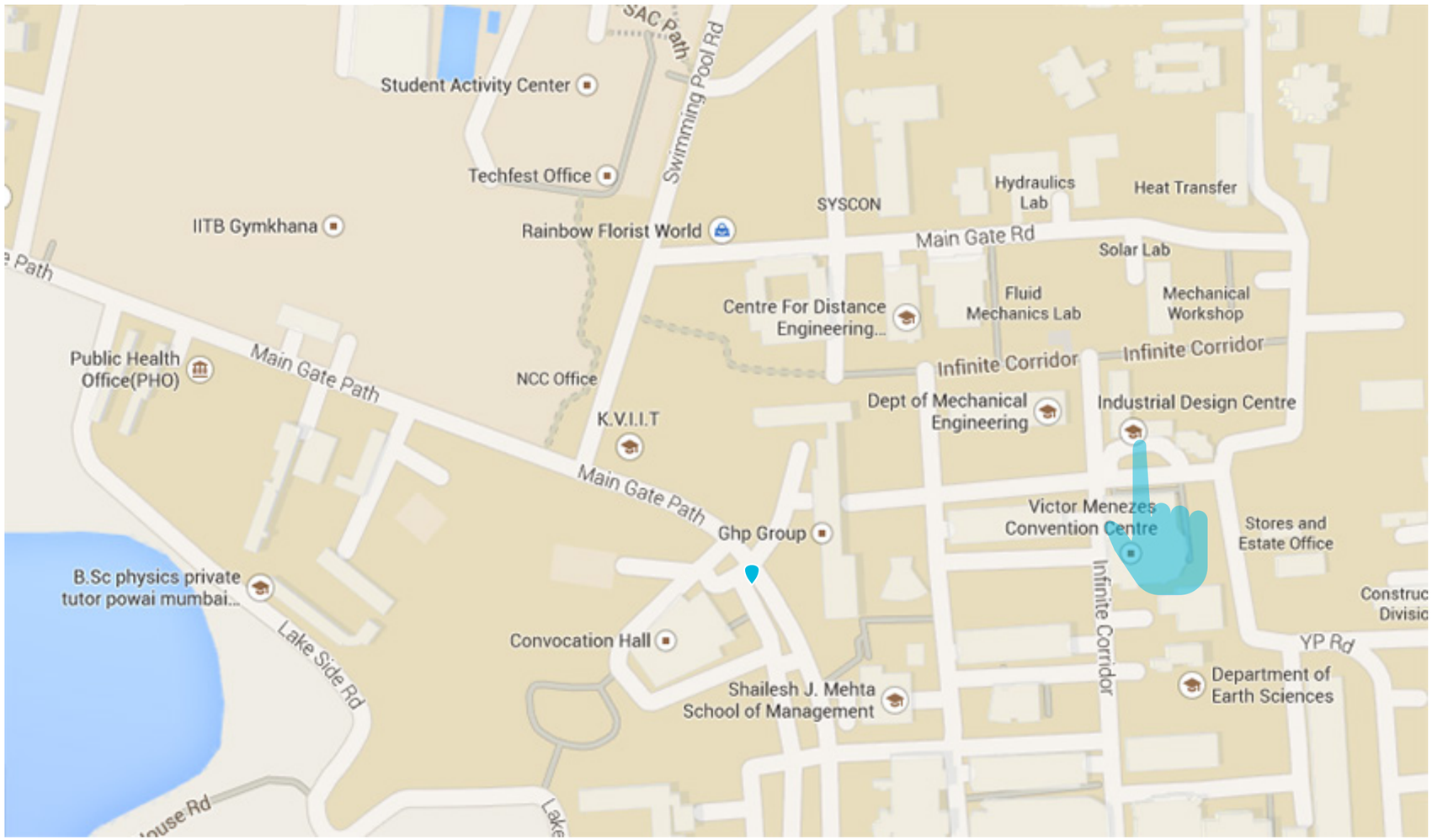
IIT Bombay
Transit

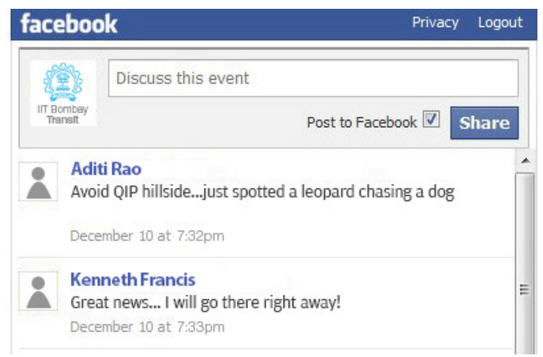
Now 18˚C

Next 2 hrs 15˚C

From: Convocation Hall

To: Type destination here or click on the map





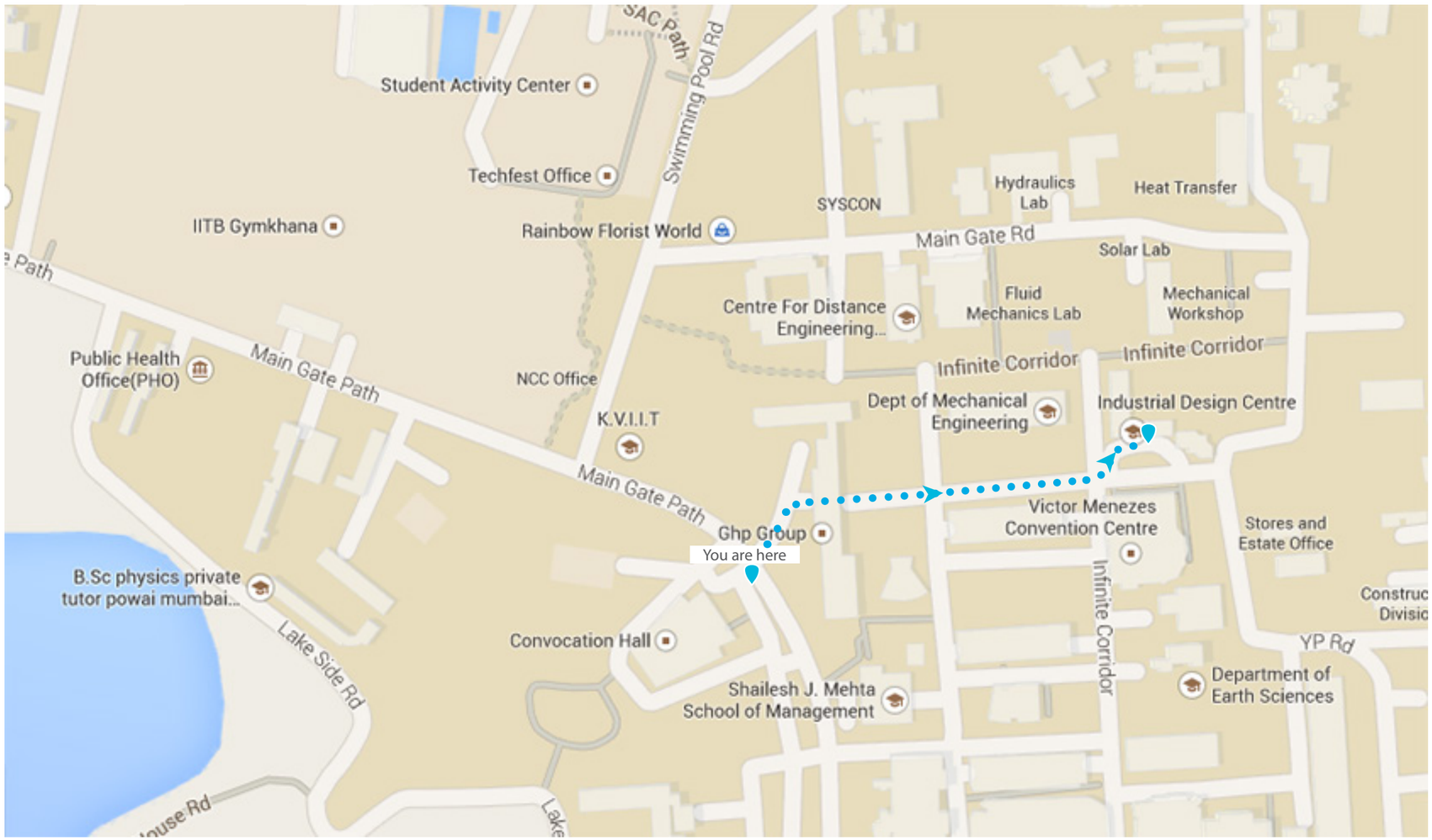
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From: Convocation Hall

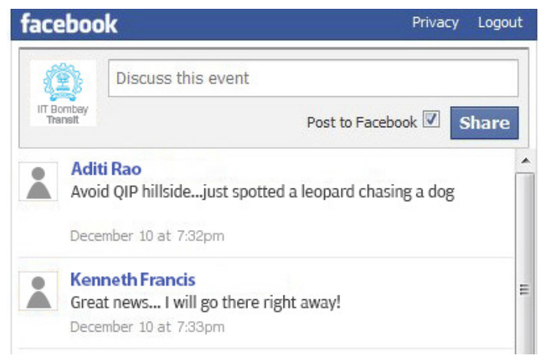
To: Industrial Design Centre



Route

Shortest mode of travel: **Walk**

10:25am
Reach Industrial Design Centre



Scenario 7

Input by user : Click
Output to user : Default route

Assumptions:
i) Absence of GPS.
ii) Absence of touchscreen input.

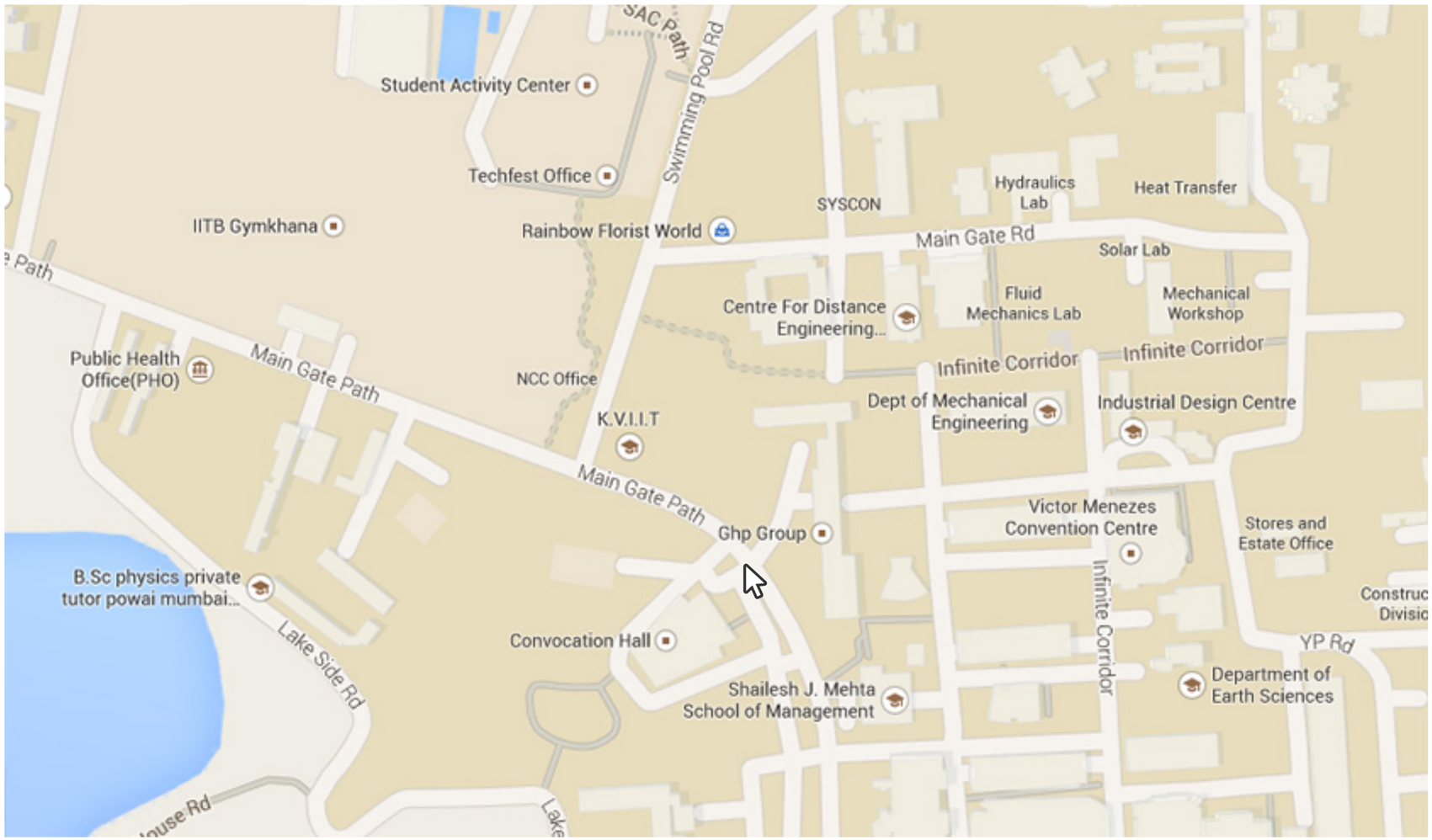
IIT Bombay
Transit

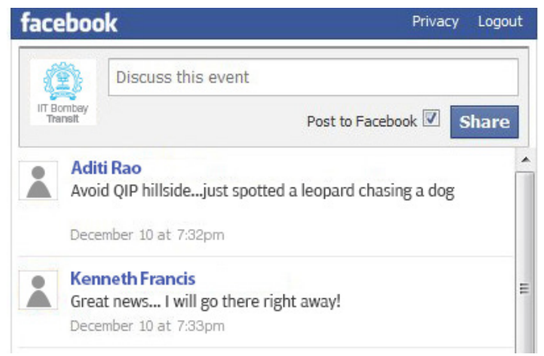
Now 18˚C

Next 2 hrs 15˚C

From Type destination here or click on the map

To Type destination here or click on the map





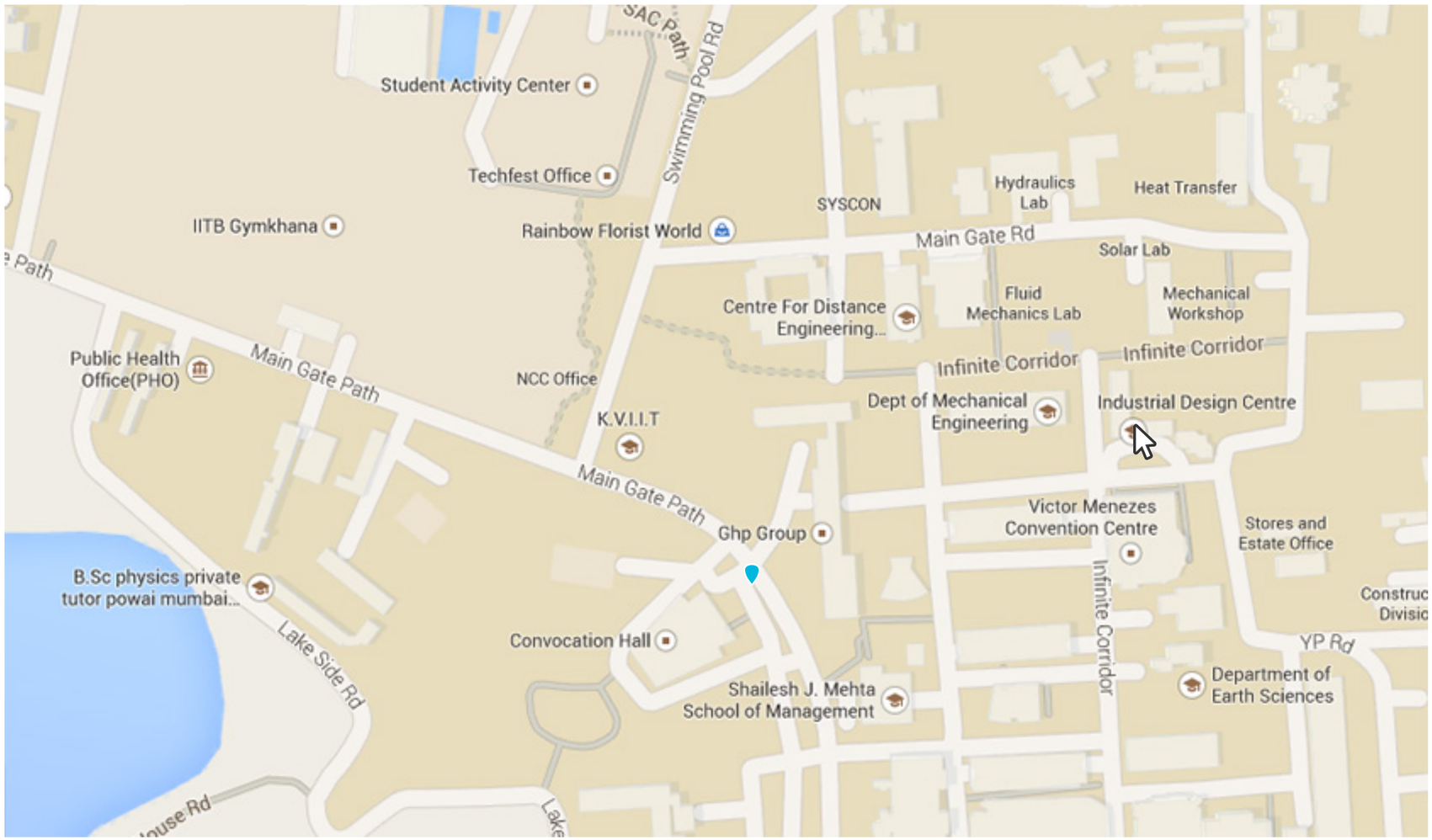
IIT Bombay
Transit

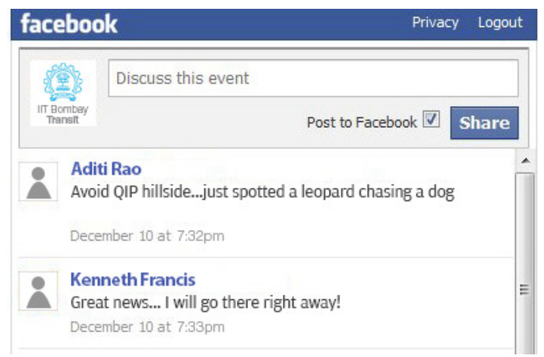
Now 18˚C

Next 2 hrs 15˚C

From Convocation Hall

To Type destination here or click on the map





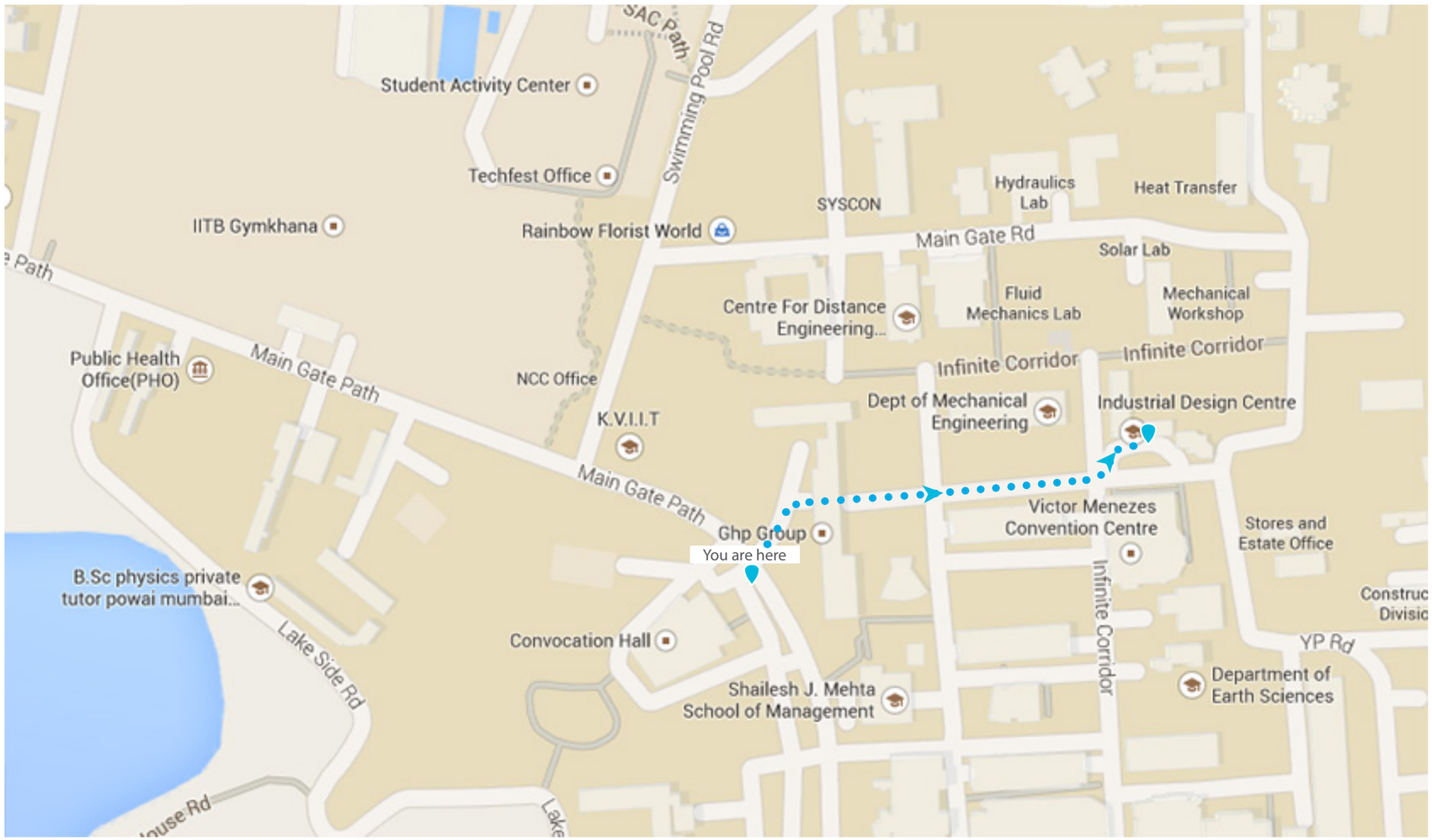
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From: Convocation Hall

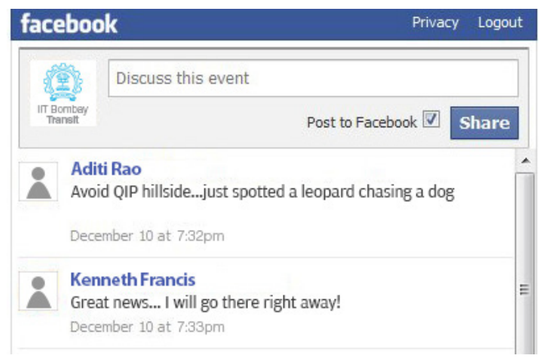
To: Industrial Design Centre



Route

Shortest mode of travel: **Walk**

10:25am
Reach Industrial Design Centre



Scenario 8

Input by user : Type, touchscreen
Output to user : Default route

Assumptions:
i) Absence of GPS.
ii) Presence of touchscreen input.

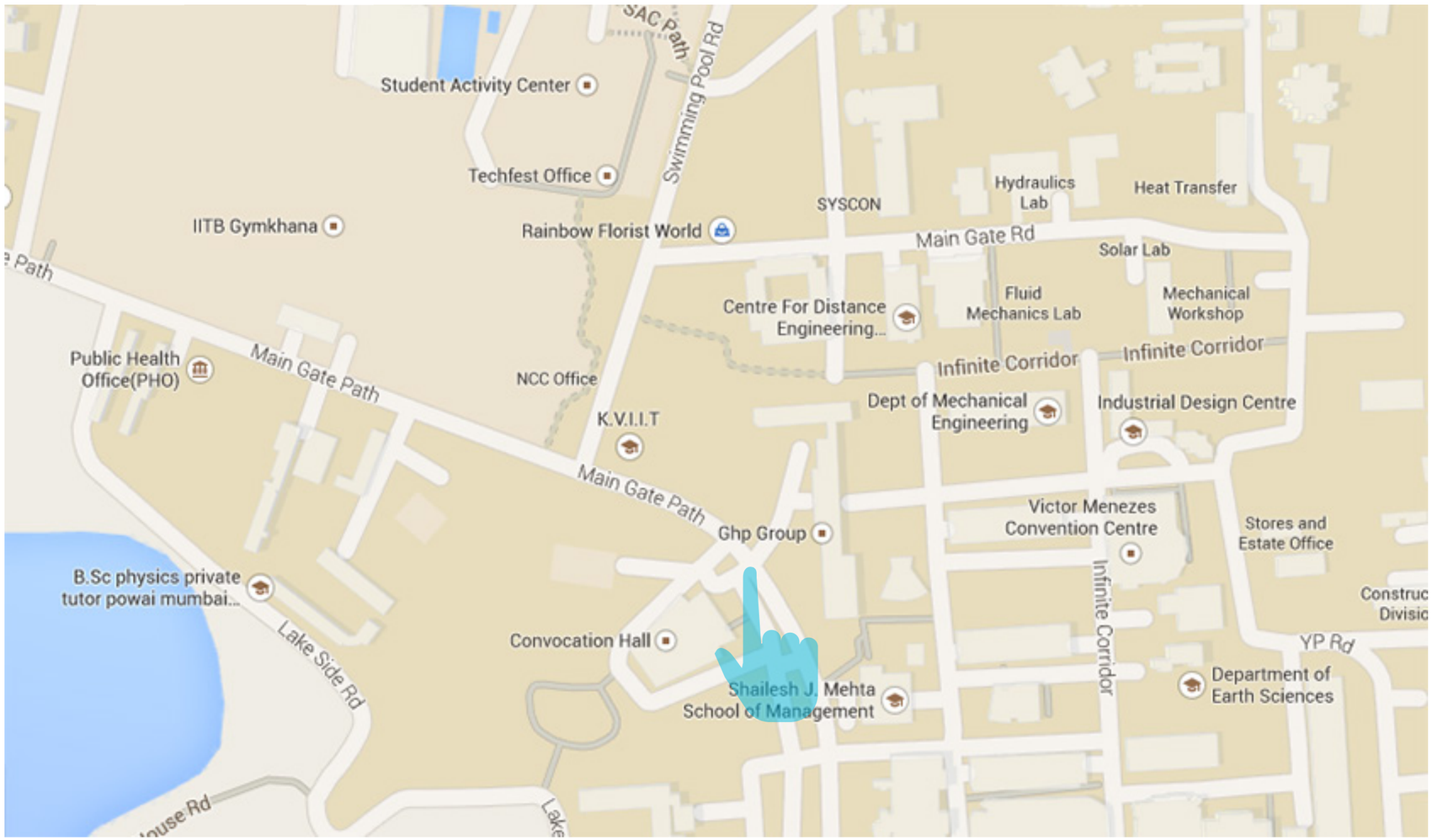
IIT Bombay
Transit

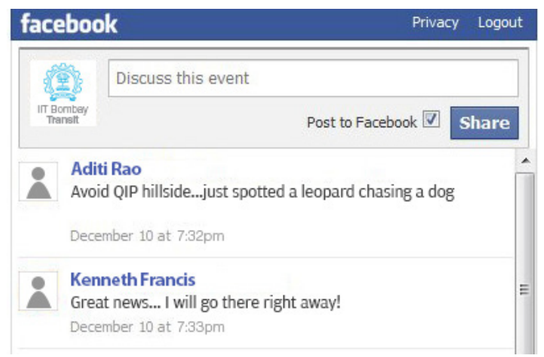
Now 18˚C

Next 2 hrs 15˚C

From Type destination here or click on the map

To Type destination here or click on the map





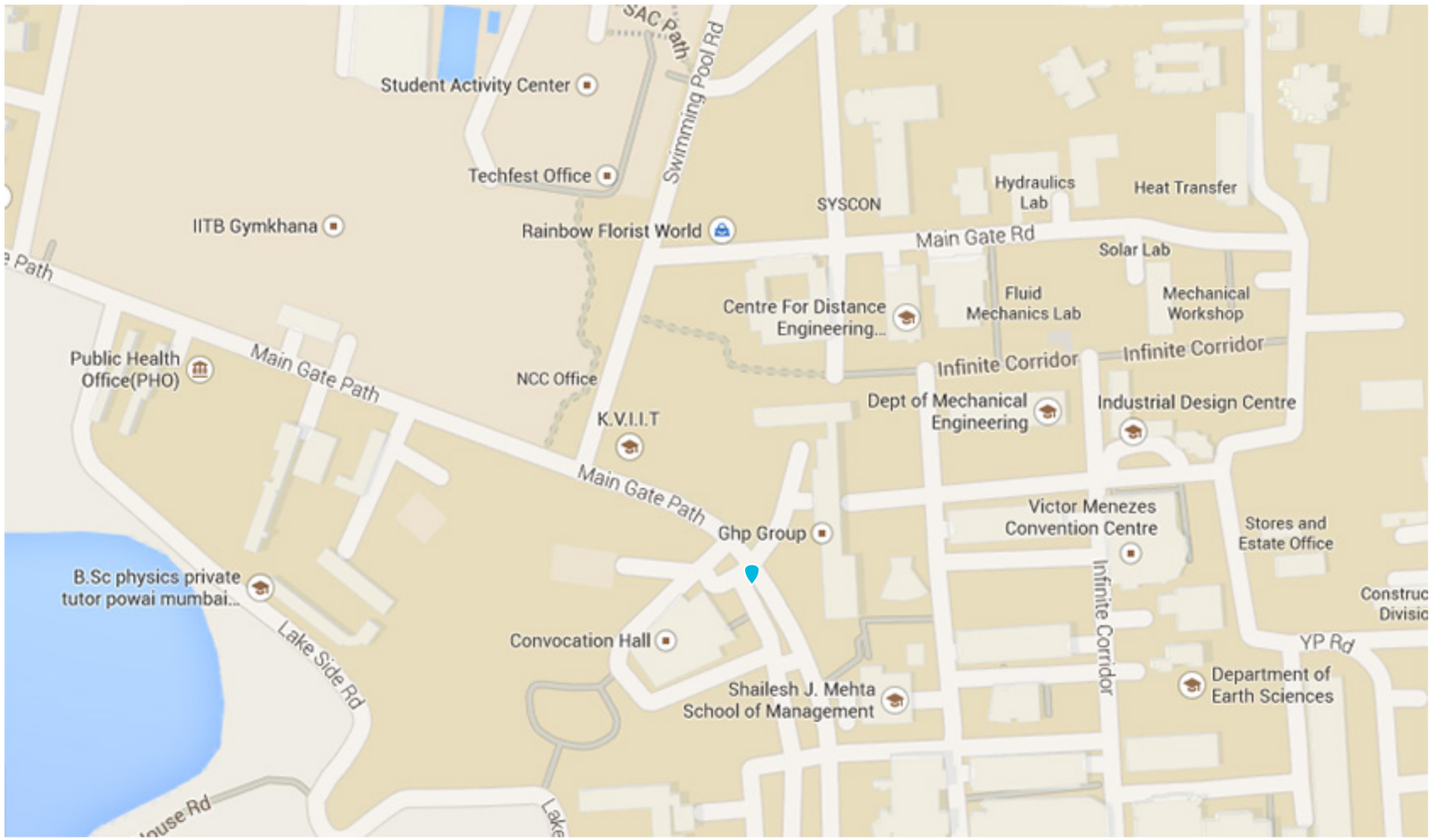
IIT Bombay
Transit

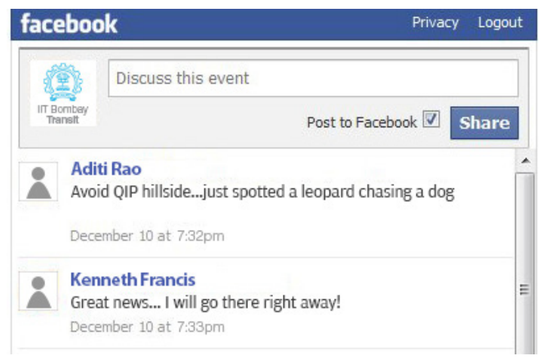
Now 18˚C

Next 2 hrs 15˚C

From Convocation Hall

To Type destination here or click on the map





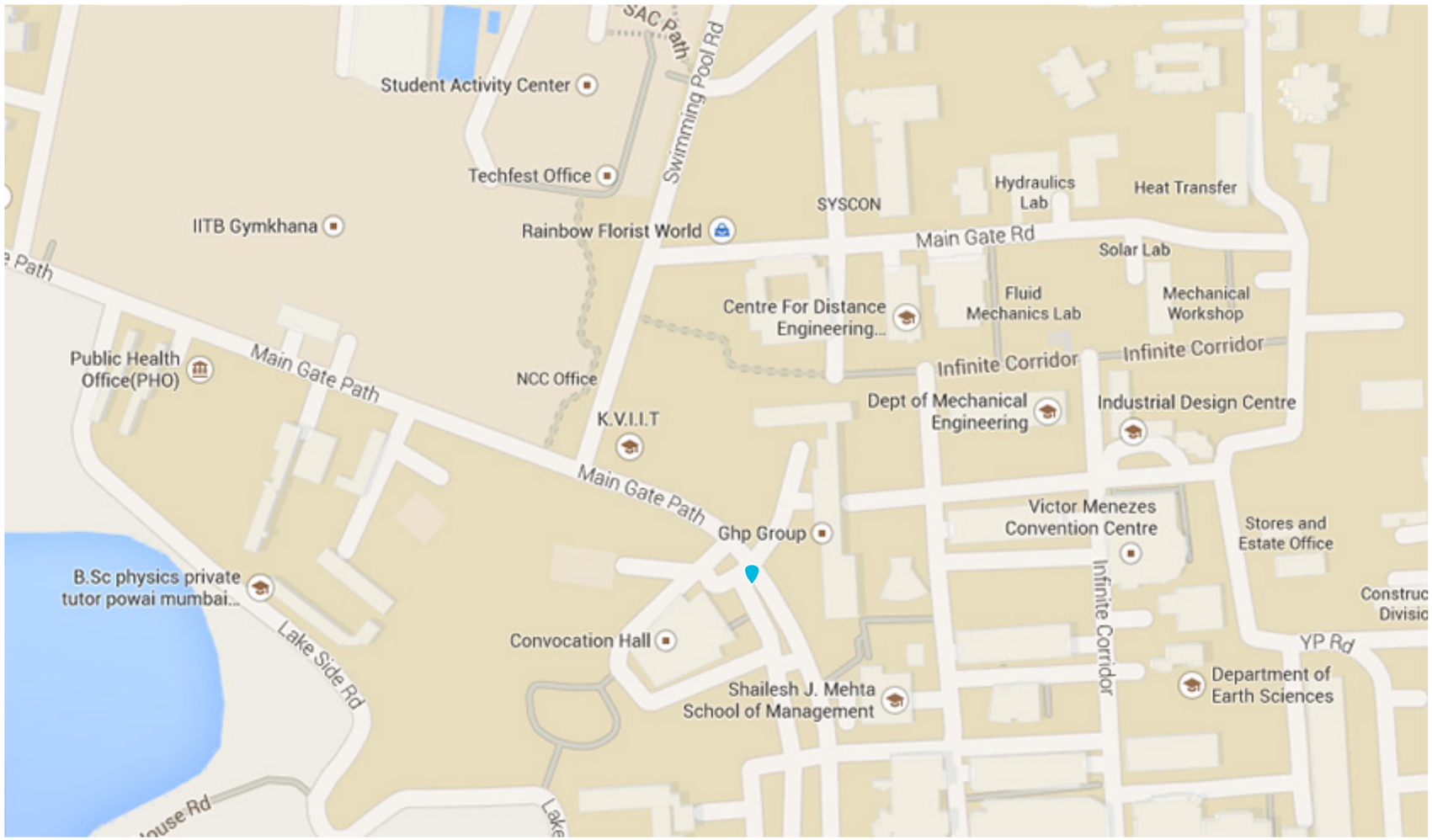
IIT Bombay
Transit

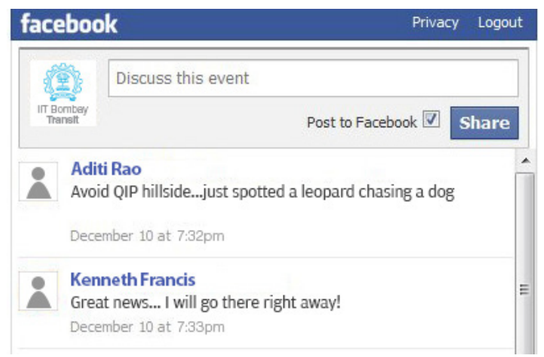
Now 18˚C

Next 2 hrs 15˚C

From Convocation Hall

To |





IIT Bombay
Transit

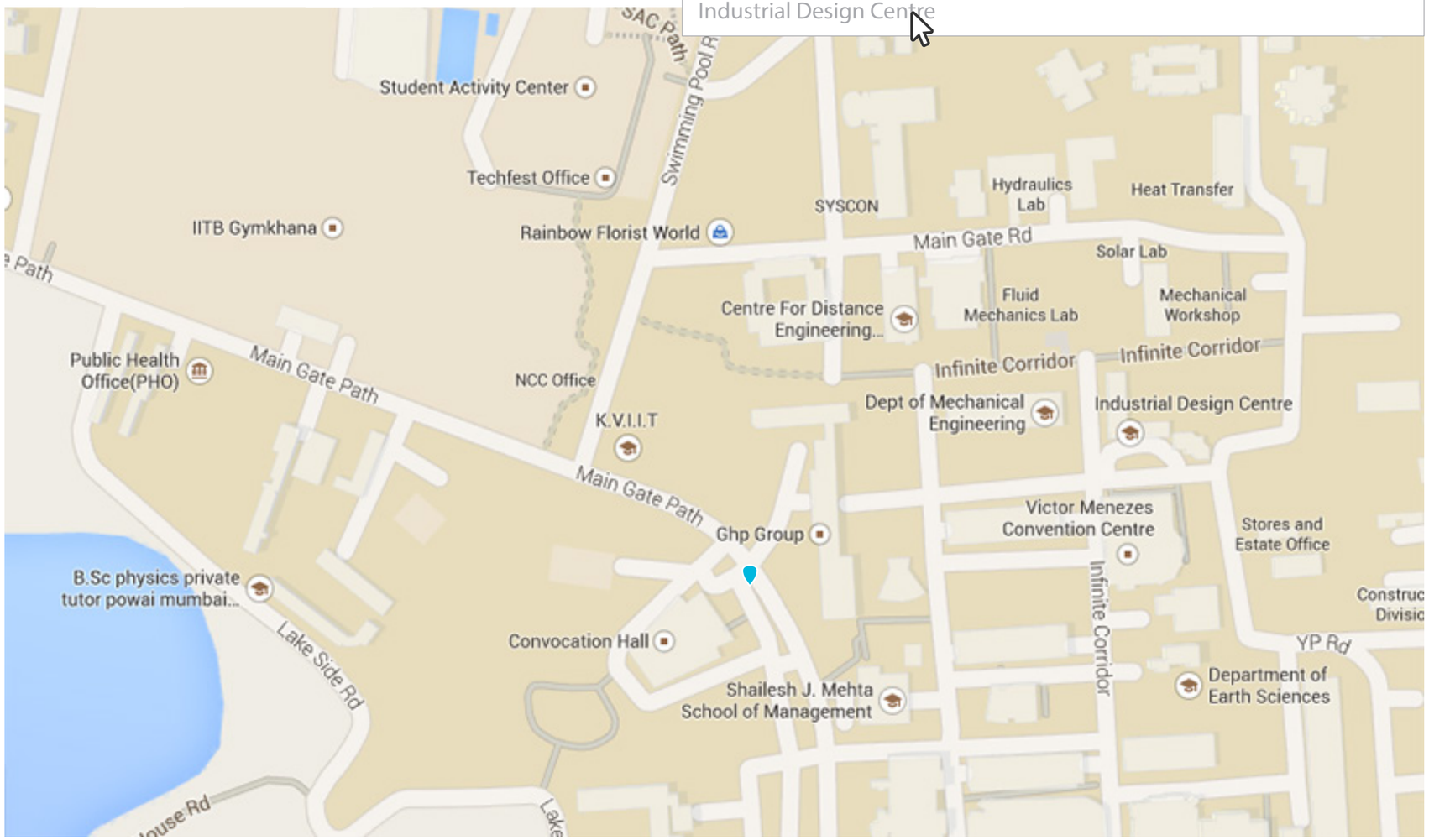
Now 18˚C

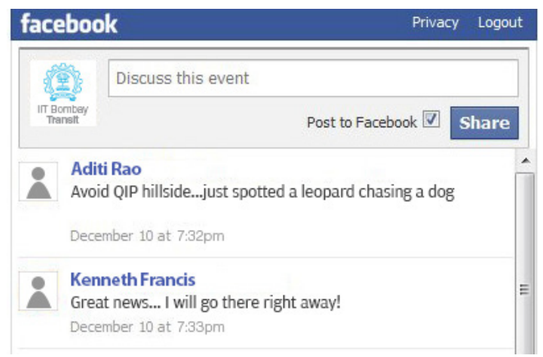
Next 2 hrs 15˚C

From Convocation Hall

To Industrial Des

Industrial Design Centre





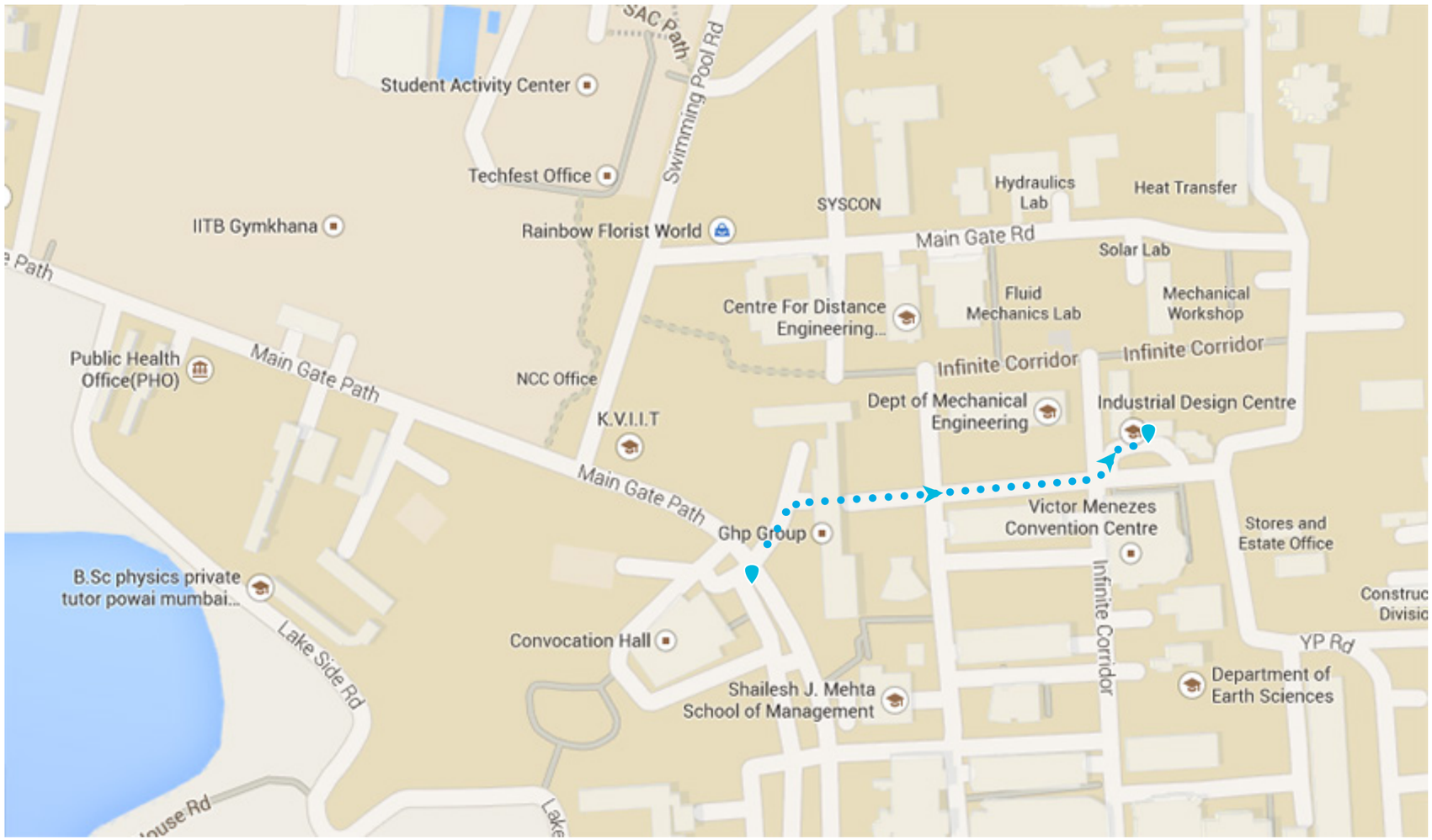
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From Convocation Hall

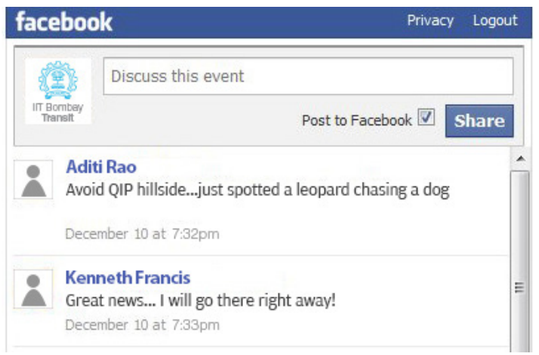
To Industrial Design Centre



Route

Shortest mode of travel: **Walk**

10:25am
Reach Industrial Design Centre



Scenario 9

Typed location does not exist

Input by user : Type
Output to user : Default route

Assumptions:

i) Absence of GPS.

ii) Absence of touchscreen input.

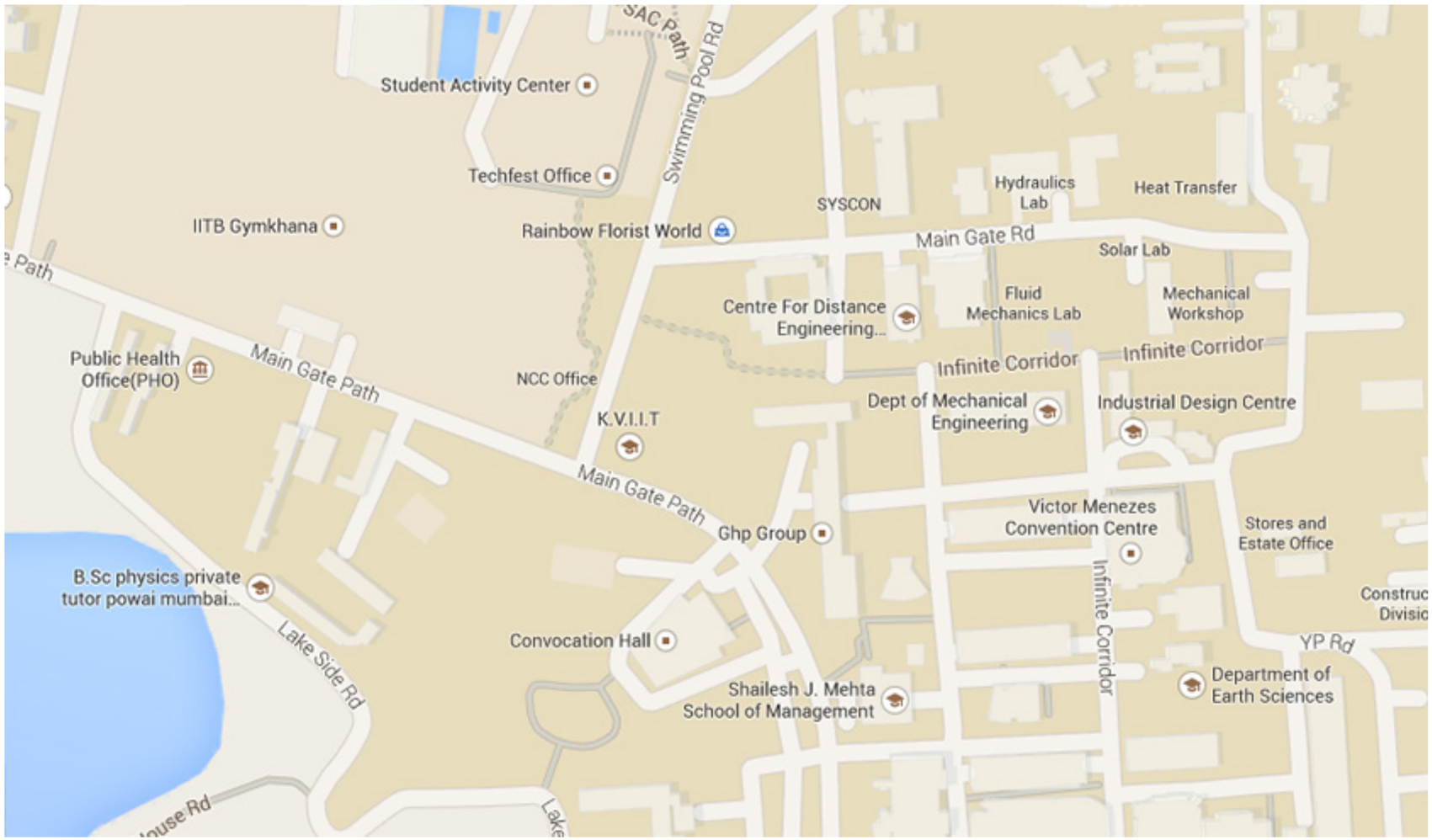
IIT Bombay
Transit

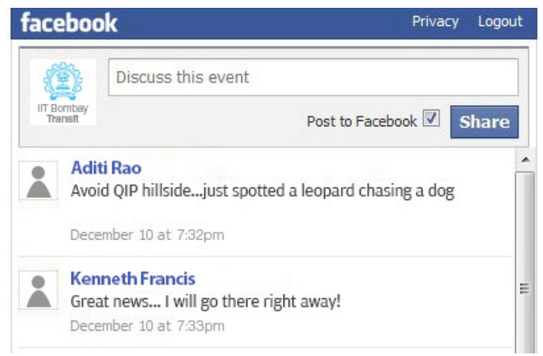
Now 18˚C

Next 2 hrs 15˚C

From Type origin here or click on the map

To Type destination here or click on the map





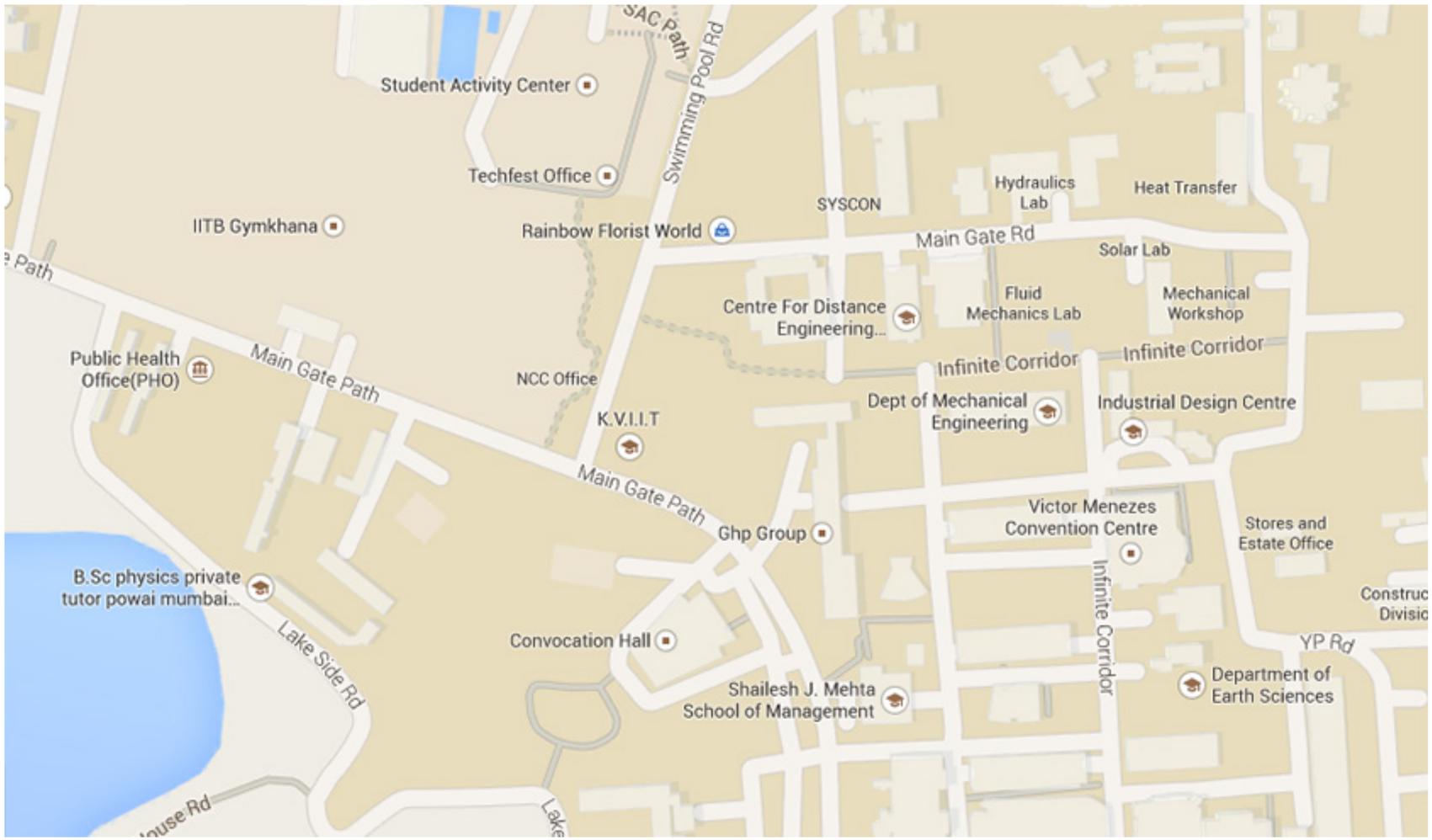
IIT Bombay
Transit

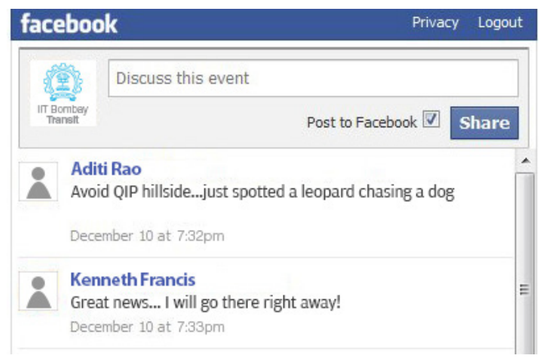
Now 18˚C

Next 2 hrs 15˚C

From |

To Type destination here or click on the map





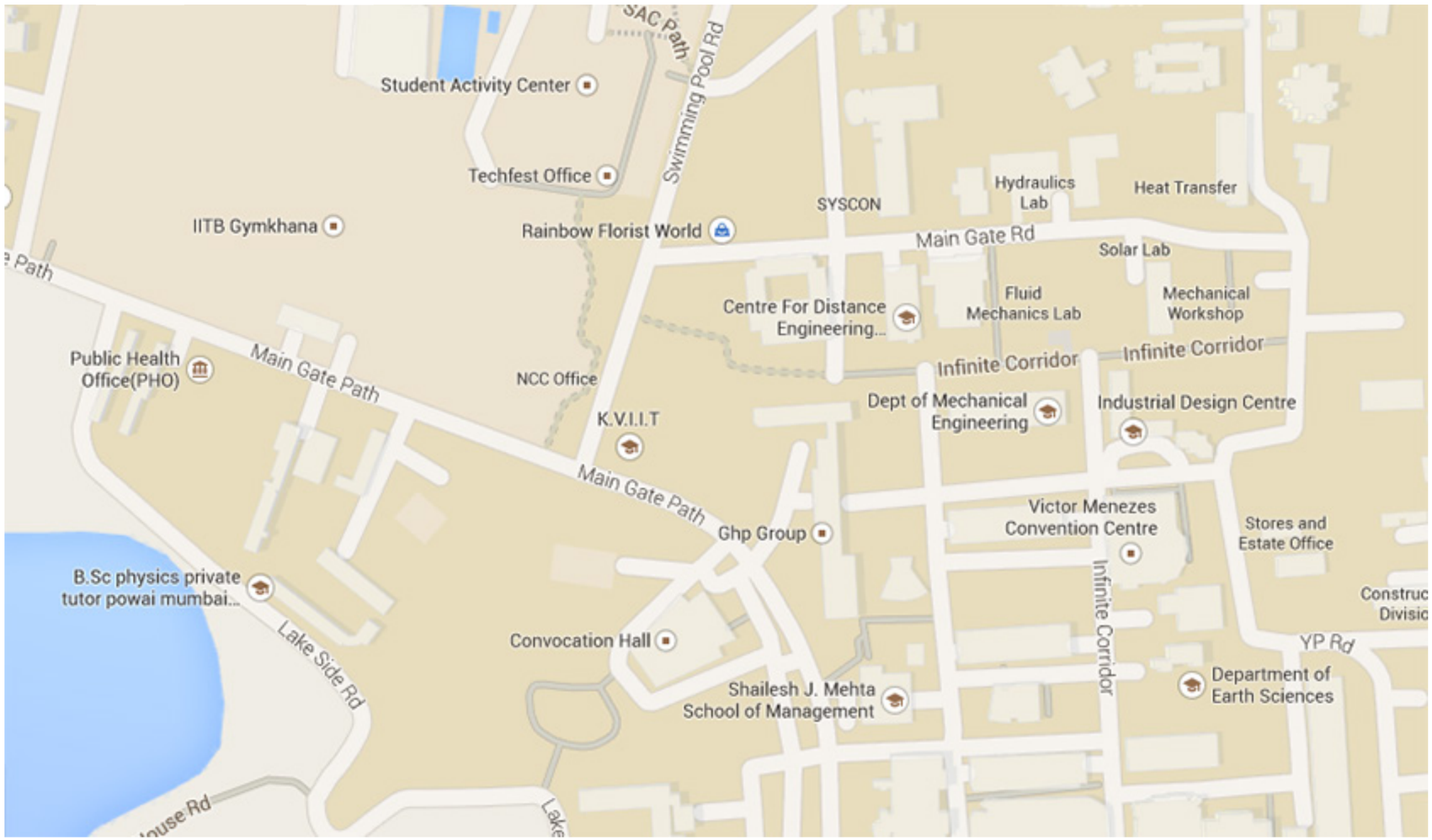
IIT Bombay
Transit

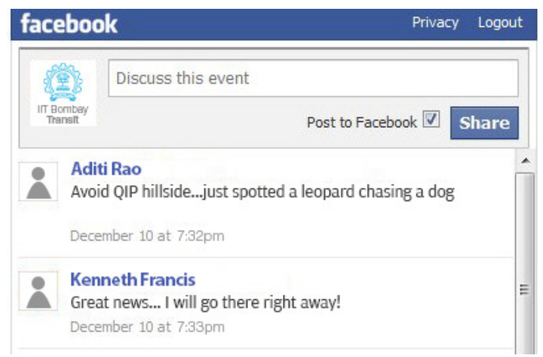
Now 18˚C

Next 2 hrs 15˚C

From Concert Hall

To Convocation Hall





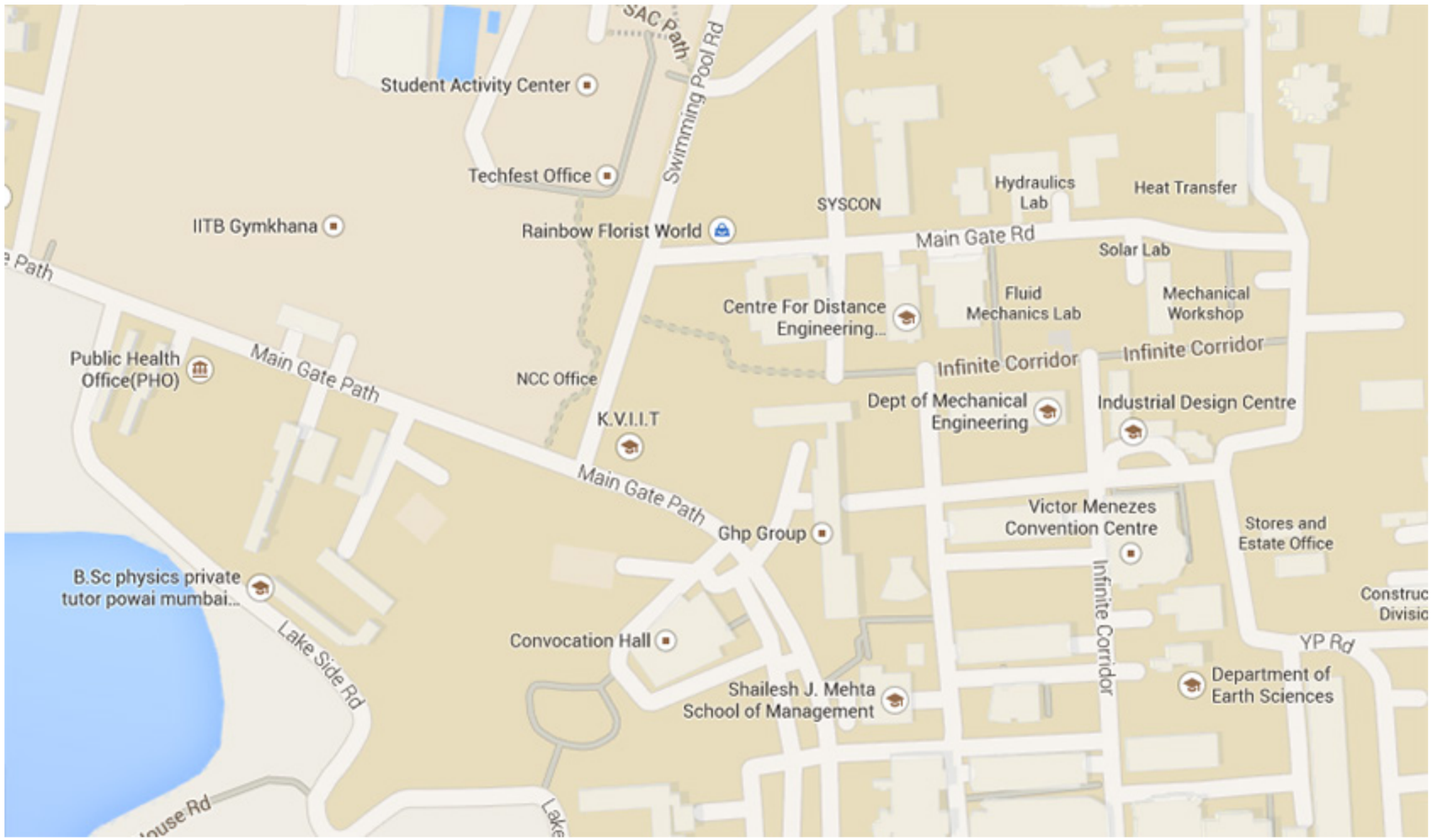
IIT Bombay
Transit

Now 18˚C

Next 2 hrs 15˚C

From Type destination here or click on the map

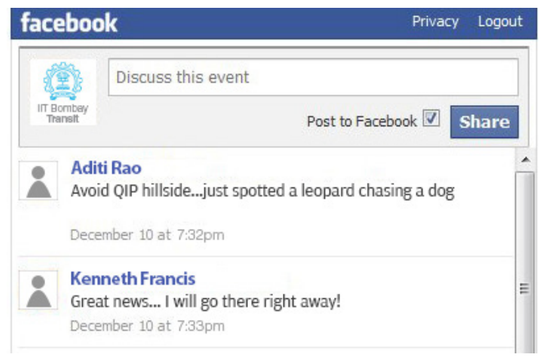
To Type destination here or click on the map



Error!

Location does not exist

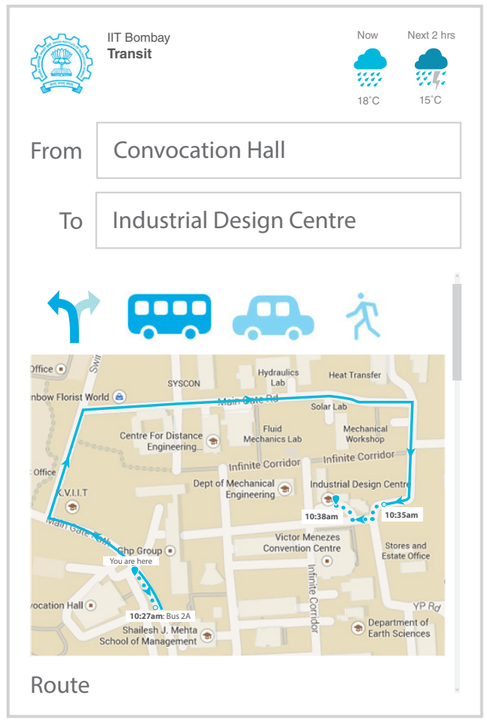
You may want to type:
Convocation Hall



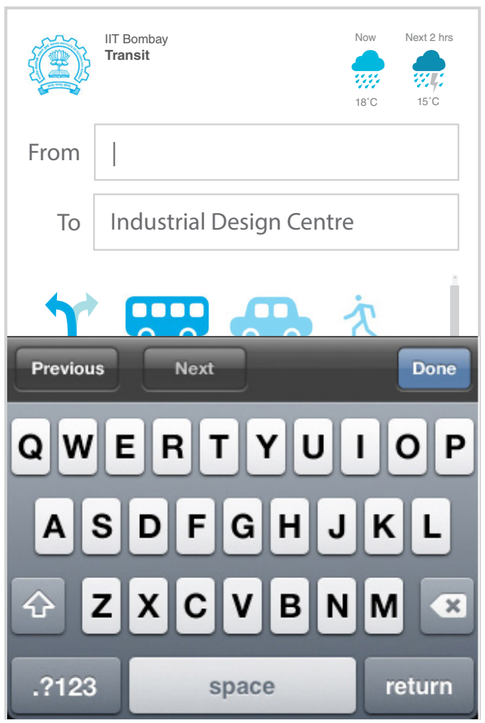
Screen sizes

For Mobile

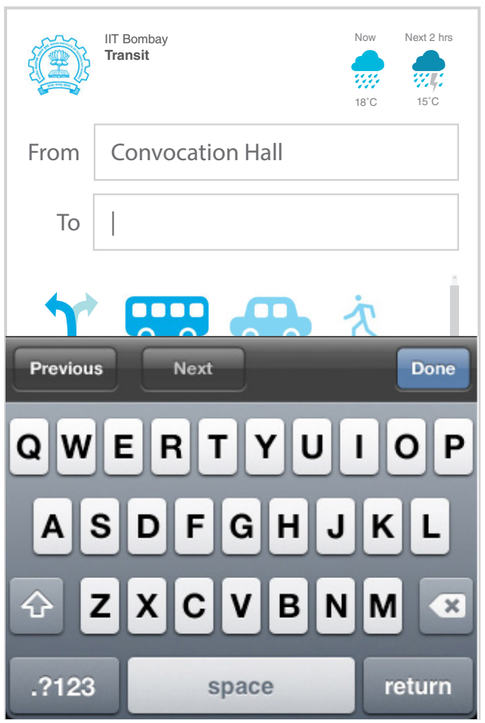
Screen size: 320px x 480px



STEP 1



STEP 2

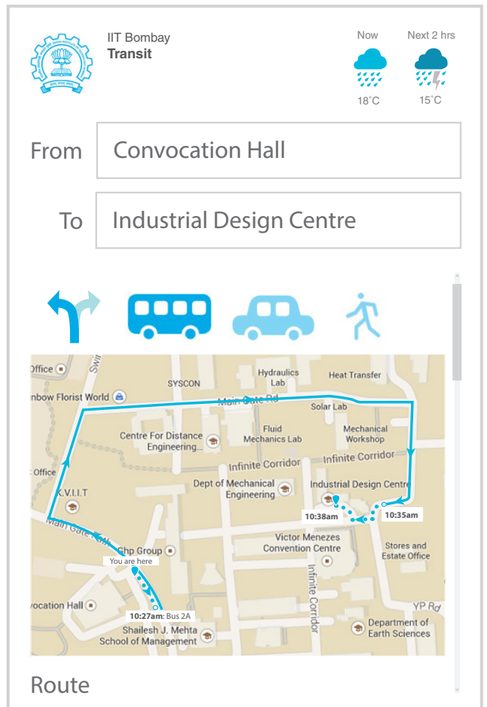


STEP 3

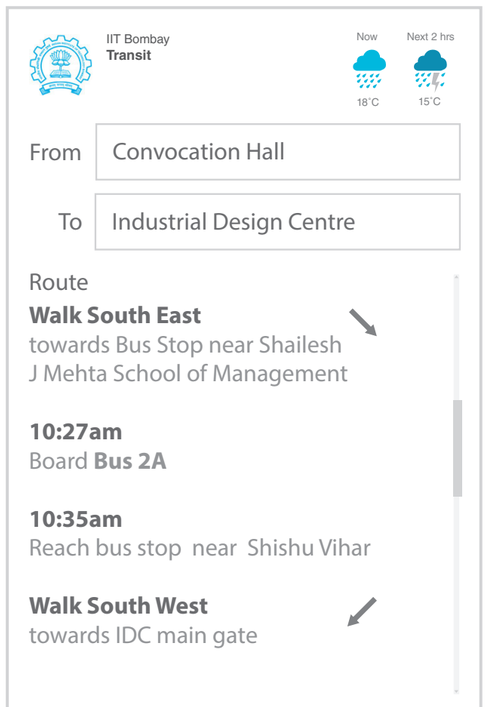
Screen sizes

For Mobile

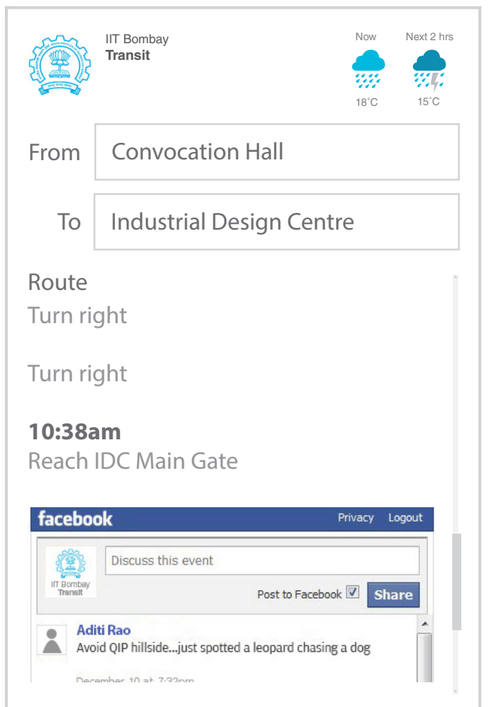
Screen size: 320px x 480px



STEP 4



STEP 5

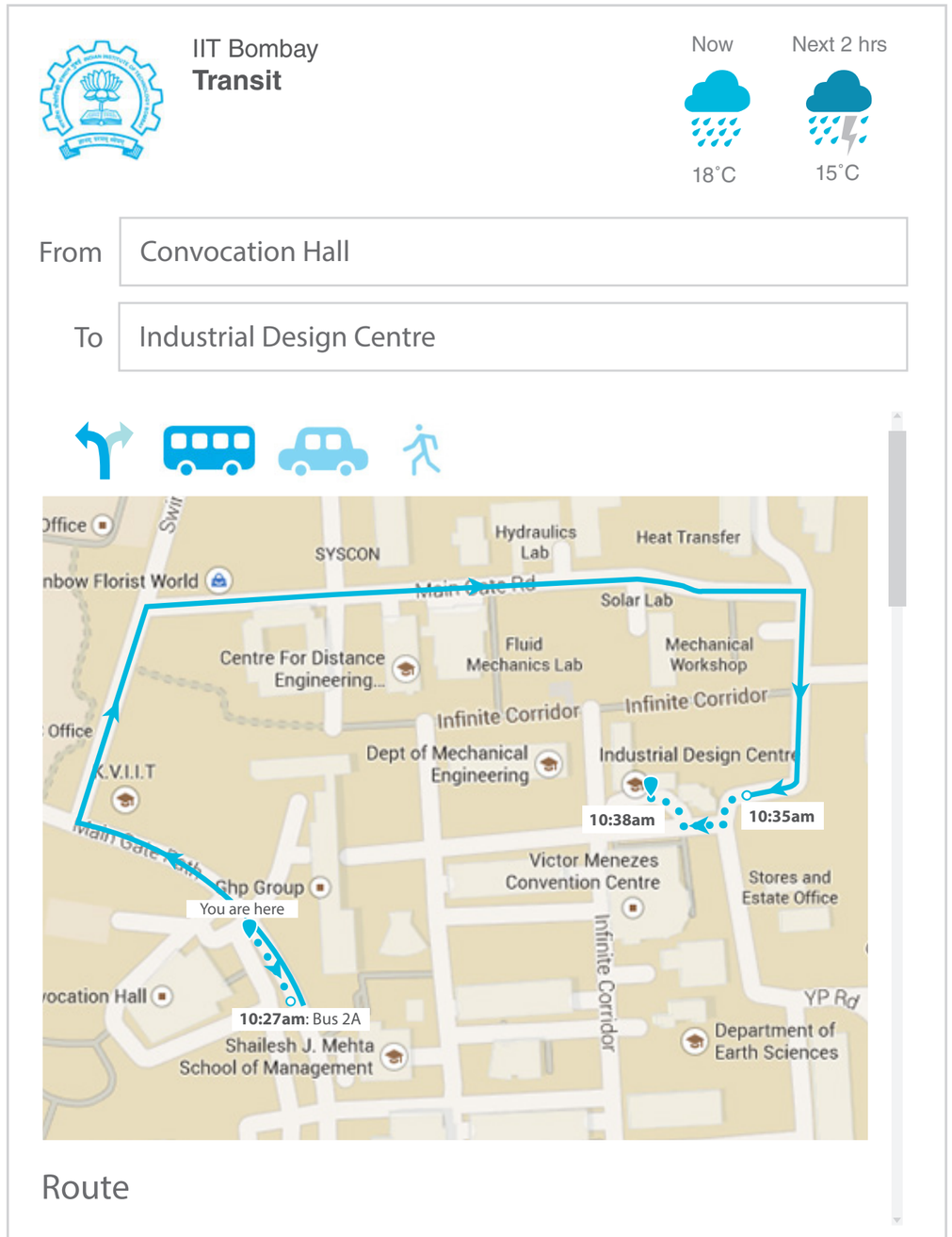


STEP 6

Screen sizes

For Tablet

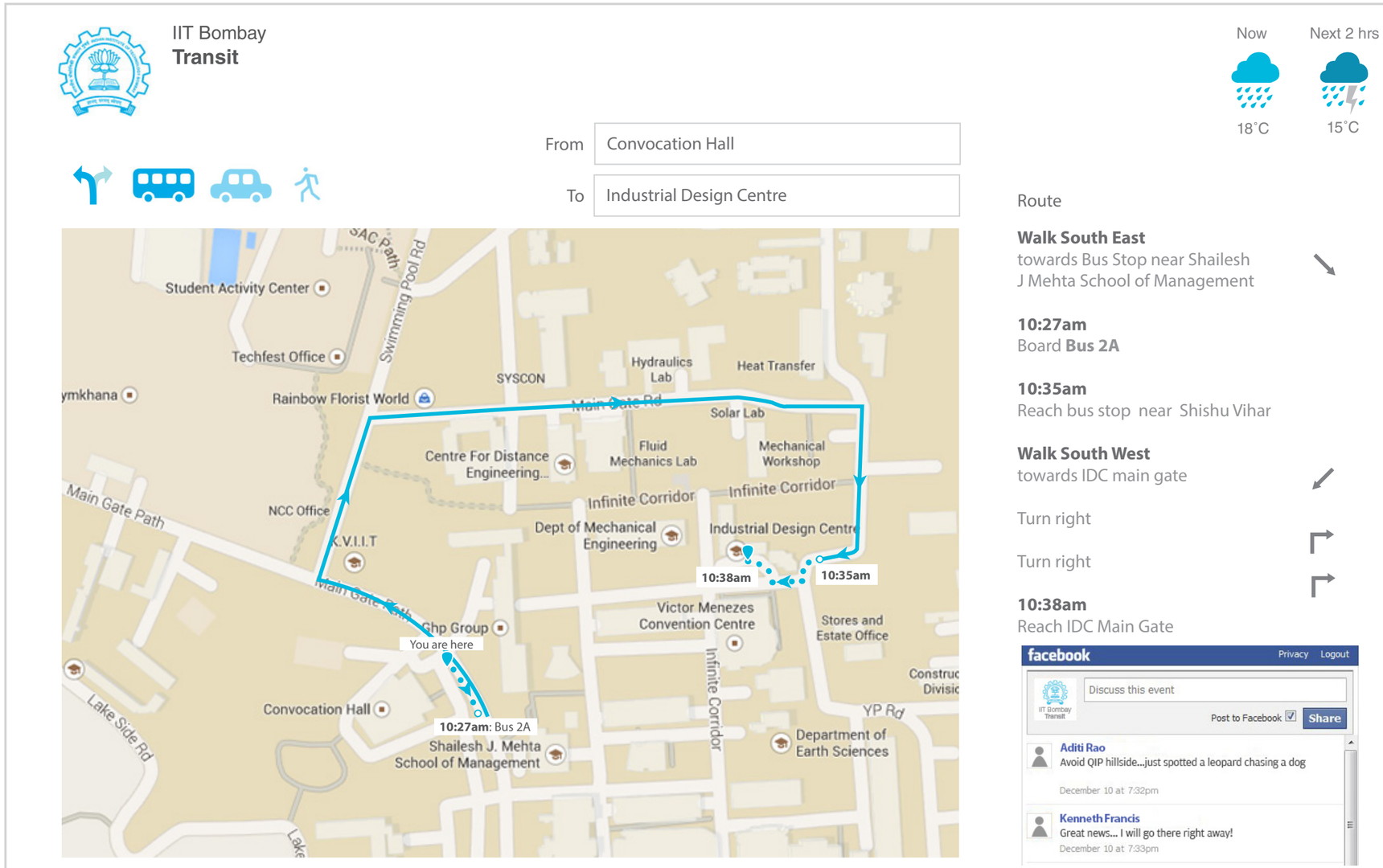
Screen size: 768px x 1024px



Screen sizes

For Desktop

Screen size:1280px x 800px



THANK YOU