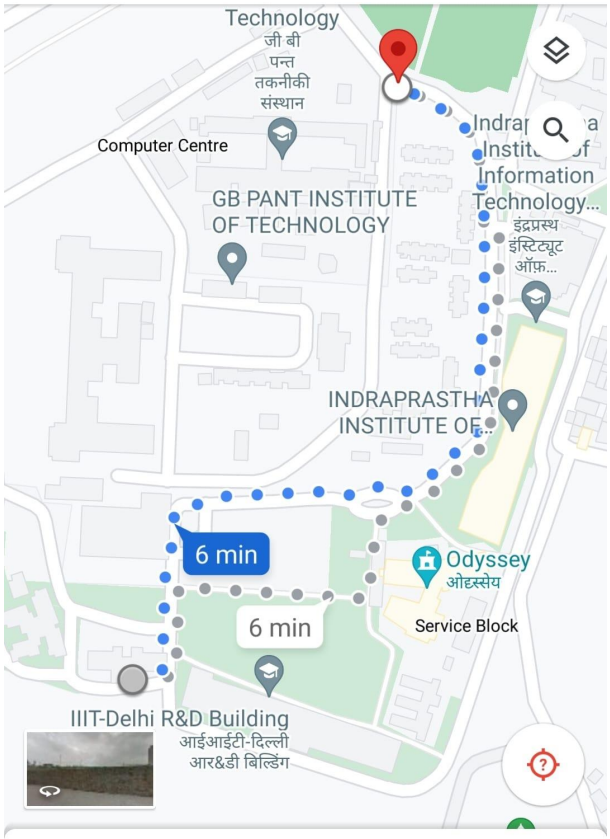
Assignment 5: Monitor your walk

- Implement an app that shows the number of steps and direction of your walk. It also finds out when you take a lift vs stairs to go up/down the floors when you are inside a building
- Use pedestrian dead reckoning (PDR) to compute displacement from accelerometer reading
    - For this, compute your stride length (Hint: there are some heuristics to calculate stride length based on your height and weight)
    - Compute the number of steps taken (use accelerometer pattern)
    - Determine the direction of moving (using a magnetometer)

- Note that here you assume that the user holds the phone in hand and y-axis is towards north or to your front i.e., the phone is oriented well.
- You also assume that the user does not shake his phone
- Showcase the number of steps taken and direction of your walk.. Design a nice UI to showcase this information Design your UI as you seem appropriate.
- Take stairs and lift one at a time to go up or down. Distinguish between when you are taking a lift vs stairs using your accelerometer pattern.
- Bonus: Show the trajectory of your walk (see the sample picture and ignore the map part). This is just a sample.



Rubric:

1. Count number of steps: 2 marks, determine direction: 2 marks, stride length: 1mark
2. Showcasing this using appropriate UI: 3 marks
3. Determine when taking lift 2
4. Determine when taking stairs 2
5. Bonus marks: 2

Note: You are free to design the UI as per your choice. You are encouraged to design a clean and pleasing UI.