Poster: Accurate Schedule Alarming Based on User Profiling

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ABSTRACT

Time management implementations vary vastly, however a commonly used method are schedulers. Scheduler notify where next plan happening and when to wake up, leave etc. However, it is not smart enough to make on time. Current scheduler only can provide a flat schedule warning prior to fixed time and the user had to check time to depart manually. Motivated by this, we demonstrate the prospect of using mobile phone's sensor to capture user's characteristics and delivers exact time scheduling for the user based on their characteristics and status to arrive on the place on time.

Keywords

Personalization and profiling; Social and behavioral science

1. INTRODUCTION

Time management implementations vary vastly, however a commonly used method are schedulers. Scheduler notify where next plan happening and when to wake up, leave etc. However, it is not smart enough to make on time. Schedulers could be smarter with circumstantial judgement based on a user's behavior, current location and traffic condition.

Current scheduler only can give a flat schedule warning prior to fixed time(ef. 15mins) as the user's setting. Though, there is little bit enhancement at iOS calendar [1] but still numerous discomforts such as user has to set a point of departure and a means of transportation(limited to walking and driving) both manually. The problem with this is that when (1) the user happens to move to another place, (2) change another means of transportation or (3) there's an unexpected heavy traffic jam due to highway maintenance, car accident, local festival etc.

Motivated by this, we explore the prospect of using mobile phone's sensor to capture user's characteristics and provide more accurate flat schedule warning prior to the user's schedule accordingly. Our application delivers exact time scheduling for the user to arrive on the place on time.

This system first observes the user's characteristics, such as pace and how good at finding direction then classify the user to offer time padding for estimated time.

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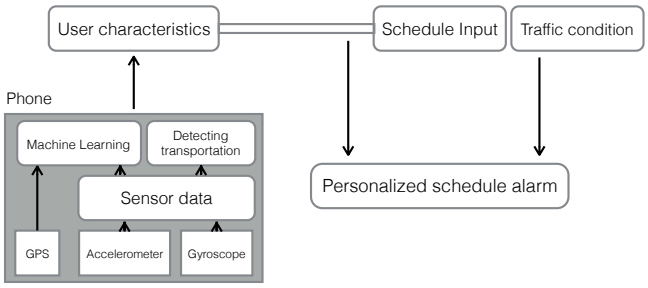

Figure 1: Block diagram of the application

2. OUR APPROACH

2.1 Learning about the user

Our application first conducts unsupervised learning to classify the user. This phase includes estimating the user's pace, cycling speed and driving style. Since people nowadays are holding their mobile phones with their daily lives, various sensors embedded in mobile phones could be a great means of collecting training sets about the user's characteristics [2].

If the user is determined as directionally challenged, scheduler adds time padding for estimated time. This procedure is achieved by comparing estimated time from GPS and actual time consumed by the user Also, in a case of walking and cycling, our application categorizes the path and consumed time with the slope and a type of the road with consumed time.

2.2 Alarming timing depending on the user's status

We mainly presume a means of transportation as either walking, cycling or driving. However, notifications for every transportation could be distracted. We spontaneously detect the status [3] of the user's exploiting sensors then only offer a single notification for better user experience. For example, when walking is detected, other transportation methods are dropped, and vice versa for cycling and driving.

3. REFERENCES

[1] iOS calendar (yosemite): Add locations and travel time.

[2] J. R. Kwapisz, M. W. Gary, and A. M. Samuel. Activity recognition using cell phone accelerometers. *ACM SigKDD Explorations Newsletter*, 12(2):74–82, 2011.

[3] L. Stenneth and al. Transportation mode detection using mobile phones and gis information. In *19th SIGSPATIAL'11.*, pages 54–63. ACM, 2011.