ETH-EiABC Workshop 2014
Addis Ababa, Ethiopia

IMPROVING PEDESTRIAN MOBILITY
THROUGH BOTTOM-UP STRATEGIES

Final Report

Extension Site 2: Ring Road

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fig. 60: perimeter extionsion site 2

FURTHER STEPS — REFINING AND TESTING THE PROBLEM

On the final day of the fieldwork, we went into detail with the study of jaywalking (fig. 61). Already knowing that our users were people crossing the Ring Road, we now wanted to know whether the users could be clustered into usergroup(s) and what basic characteristic would define such user groups. This led us to a small survey, where we asked twelve people crossing the overpass and twelve people jaywalking about their main purpose of crossing and how long they thought it took them to cross. In addition, we noted down the age and gender of the person interviewed. Besides helping us to characterize our user group the questions served two purposes: First, to give us an understanding of our user's needs by asking them their purpose of crossing and second, to test their perception of time, giving us a more user-oriented indication of choices between crossing modes.

In addition, we timed in total 15 people jaywalking the ring road and crossing by the overpass, testing the actual time for each mode and comparing it with the pedestrians' perception of time. This was done to give us further insight into the pedestrians' needs. Finally, we counted the number of people crossing the Ring Road, testing the extent to which the jaywalk phenomenon really occurs. (fig. 62-64) Summing up on our results, we were able to further identify our user group as younger males, who would jaywalk to save time, typically on their way home or to work. In addition, we learned that jaywalking

indeed is a frequent phenomenon (1 out of 6 pedestrians crossing the Ring Road jaywalks) and that jaywalking is an almost three times faster mode of crossing than the overpass. On top, we figured that crossing times are perceived much longer than the actual times, helping to explain the reason for the existence of jaywalkers (fig. 65 & 66). With this knowledge at hand, we further refined our problem statement and started our prototyping.

FINDING A SOLUTION

Actively using our data, we started generating ideas for possible design solutions and came up with a number of ideas from which we chose two, based on a dogma. For each of the two modes of crossing – road (jaywalking) and overpass – we wanted to propose a design, which doesn't prevent people from following their aspirations (by prohibiting jaywalk or building higher fences), which is not expensive and which doesn't have dramatic influence on the present urban environment (new constructions or changes to infrastructure systems).

TWO DESIGN PROPOSALS
We ended up choosing two different but complementing solutions to the problem of jaywalking. While the first addresses denser areas of Addis Ababa, where existing overpasses are already provided, the second addresses the least denser areas, where no pedestrian crossing possibilities are provided at the moment.

HIGH-DENSITY AREAS
As a first design proposal we suggest that the already existing overpasses should be upgraded with new design elements paving the way for a more active use of the public space (fig. 67). As a human-pace mode of transportation, walking is subject to a large number of urban design qualities. From the exposure to weather, to the quality of surface and the amount of greenery, urban design qualities influence the general experience of walking. In addition, market opportunities and local vibrancy influence the walking experience and can help to (cognitively) shorten the pedestrian's journey from A to B, by mixing plain transportation with daily activities. Transparent window facades or street vendors invite pedestrians to engage in market activities and social interaction, making time seem more efficient and joyful. Thus, by cutting down on the perceived travel time, we suggest that jaywalkers can be attracted to use the overpasses.

Since overpasses are built in dense areas, on busy pedestrian routes, they are spaces of strong urban market potentials. With that said, overpasses ought to be upgraded from their current state if these
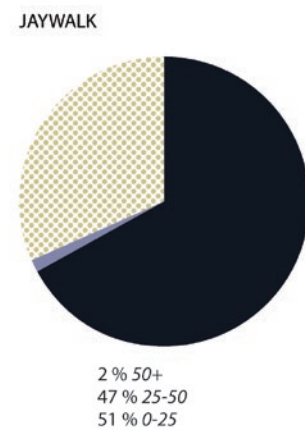
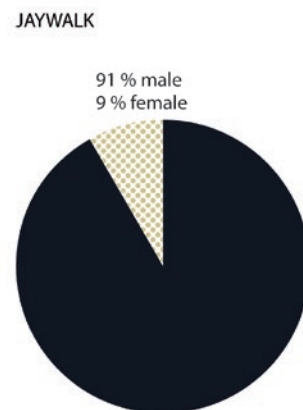fig. 61: person jaywalking

fig. 62: age of people jaywalking

JAYWALK

2 % 50+
47 % 25-50
51 % 0-25
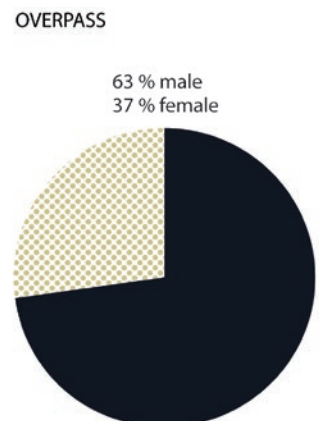
fig. 63: gender of people jaywalking

JAYWALK

91 % male
9 % female

fig. 64: gender of people using overpass

OVERPASS

63 % male
37 % female

ACTUAL TIME vs. PERCIEVED TIME OVERPASS
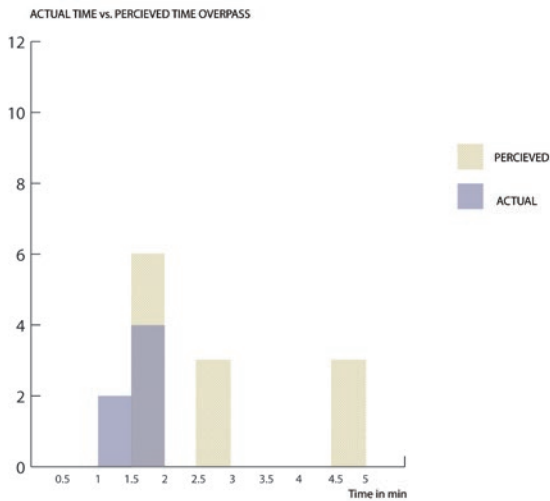
fig. 65: actual and perceived time using overpass
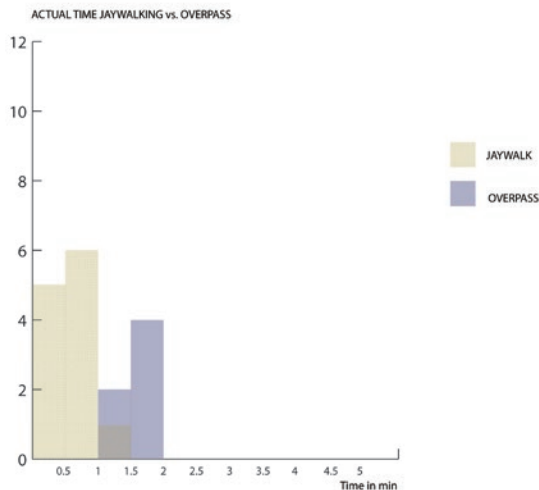

ACTUAL TIME JAYWALKING vs. OVERPASS

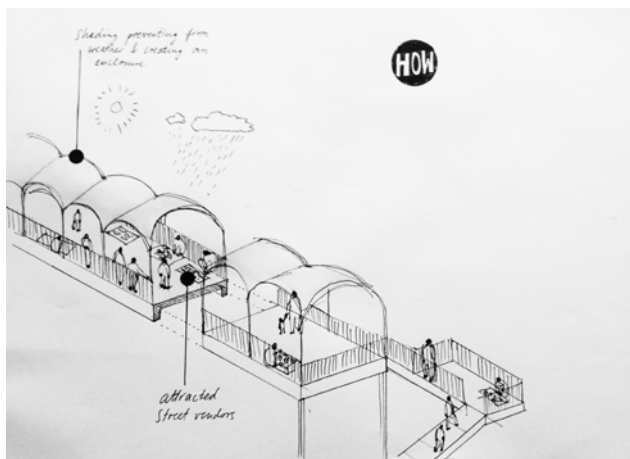fig. 66: actual time jaywalking vs. using overpass

fig. 67: conceptual design of upgraded overpass

potentials should be realized. The overpasses have almost no design qualities at the moment and could be upgraded in a number of ways. Most urgent, however, is the lack of shading. Addis Ababa is subject to a very strong sun-exposure at midday due to its high altitude and some heavy showers during the rainy season and umbrellas are up in both sun and rain. Besides providing shelter from sun and rain, a shaded overpass will increase the level of enclosure (room-like feeling), which is non-existent at the moment. Both elements are core qualities of an inviting walking environment, and can even invite people to take a hold and interact with one another or the environment. Further, having a shaded roof on the overpasses paves the way for the implementation of lighting as well. This will make it easier to navigate at night, heighten the sense of security and prevent the homeless from taking up the overpasses as living spaces.

LOW-DENSITY AREAS
In our second design proposal we suggest that jaywalk zones are demarcated in less dense areas without overpasses (fig. 68). By doing so, we want to empower jaywalkers in following their aspirations rather than prevent them from doing so. At the moment, jaywalking as a crossing mode lies in a grey zone, where it is not being either actively prohibited or enhanced. We suggest that jaywalking should be acknowledged as a mode of crossing (fig. 69), by demarcating jaywalking zones on the Ring Road. Arguably, this will increase awareness of jaywalking and potentially limit the phenomenon to the assigned zones.

Painting the road surface in an effective color is an obvious tool of demarcating a jaywalk zone. In the long run, the color can be associated with jaywalking and serve as a general warning sign for jaywalkers. In addition, we suggest that a passage is cleared for jaywalkers in the zones, by cutting through the fences of the Ring Road. Besides reducing crossing times, clearing a passage will decrease the risk of jaywalkers stumbling over one of the three fences of the Ring Road.

FINDING THE RIGHT PEOPLE

Finding the right people is almost as big a concern for the outcome of the project as it is to find the right design solution. Who funds the design implementation and future maintenance of jaywalk zones and shaded overpasses? And who facilitates the process and organization?

For the upgrade of existing infrastructure (overpasses), it may seem obvious to engage government forces. However, as the upgrades are directly related to a potential local market creation,

we suggest that private users and investors are involved from the beginning of the process. The first step is to find a facilitator, who can engage the different local stakeholders and mediate between them. The local Kebele is the obvious choice as they have direct knowledge of the people living and working in the area of interest. Kebele means 'neighborhood' in Amharic and is a tight system of neighborhood administration and control in urban Ethiopia, each comprising around 500 households. As the facilitator, the Kebele would also be responsible for finding the private investors. We suggest that the overpasses are funded through advertisement. Since overpasses are located in high-dense areas with a considerate flow of people passing by, billboards hanging on the overpasses would be an effective exposure of a brand (fig. 70). To bring one example, Tomoca Coffee could buy a billboard on the overpass, for which they will pay for the design upgrade of the overpass.

While the local Kebele could run the project of upgrading overpasses, we suggest that the project of demarcating jaywalk zones is orchestrated by central forces. There are no obvious private investors for the demarcation of jaywalk zones, which is part of a large-scale road strategy with only one objective (increasing safety for jaywalkers). In light of this, we see the government as the main facilitator and funder of the project, which is also more effectively implemented top-down (fig. 71).

CLOSING REMARKS

The outlined proposals include a two-level content. First, they are actual walkability design proposals, addressing a contemporary urban problem of Addis Ababa. Second, they are more general suggestions for the future urban development of the city. Following a bottom-up approach, we propose that local communities could be used more actively in the urban (and financial) development of the city. In addition, we suggest pedestrianism to be viewed as a resource of the city instead of an informal element of a car-oriented city. Besides being a more sustainable and safe mode of transportation, walking brings a stronger social cohesion to a city and the location of urban markets are persistently linked to the pathways of pedestrians. With our design proposals, we do not promise that the number of jaywalkers will decrease, but awareness of the jaywalk problem should be increased. Again, this is a problem, which can be linked to general planning strategies of Addis Ababa, giving favor to automobile transportation.
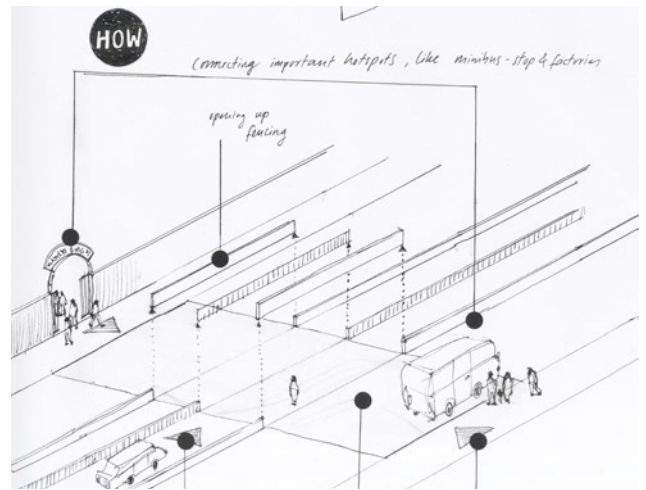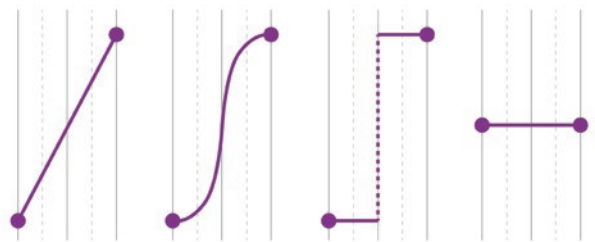

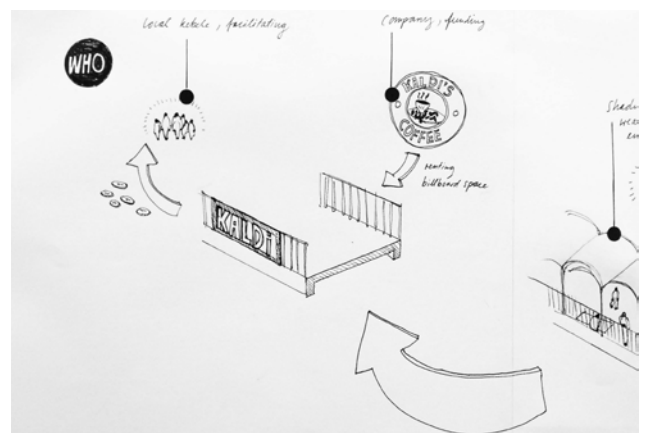fig. 68: conceptual design of jaywalking zone

fig. 69: jaywalking typologies

fig. 70: overpasses: financing & facilitation
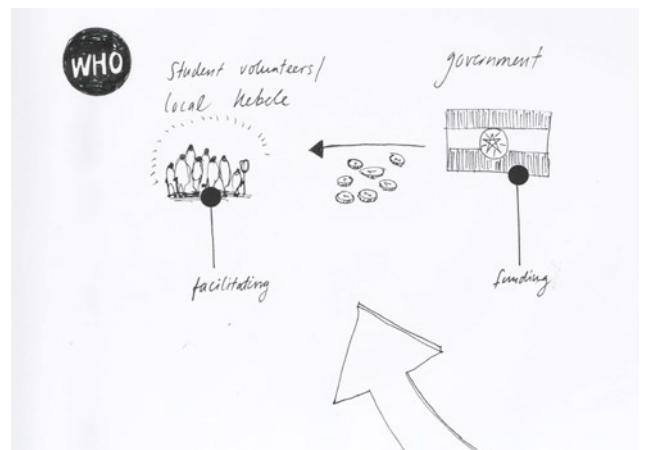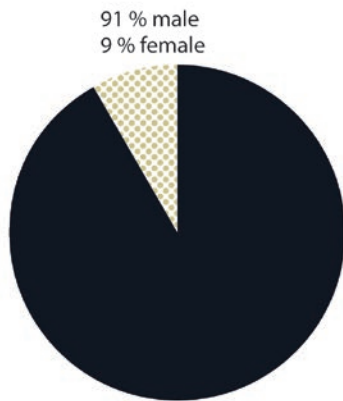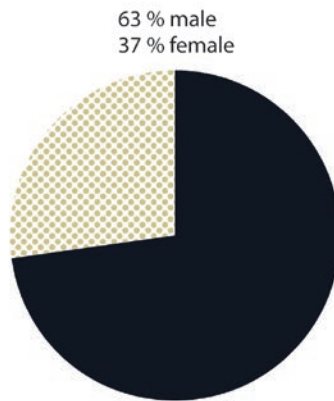

fig. 71: jaywalkzones: financing & facilitation

fig. 72: observations first field trip (pink: bus stop, green: vending, shaded: industrial buildings)

JAYWALK
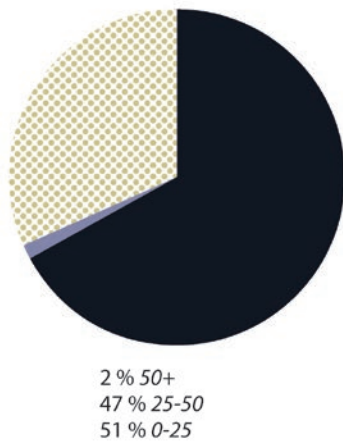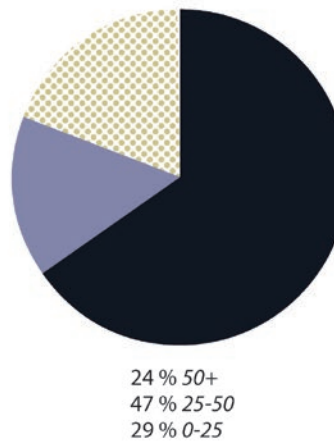
91 % male
9 % female

OVERPASS

63 % male
37 % female

JAYWALK

2 % 50+
47 % 25-50
51 % 0-25

OVERPASS

24 % 50+
47 % 25-50
29 % 0-25

PURPOSE OF CROSSING

50 % home
33 % work
0.8 % shopping
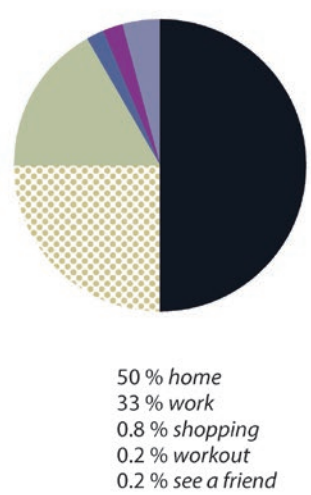0.2 % workout
0.2 % see a friend

fig. 73: user studies on age, gender, purpose

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