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This document is under construction. Feel free to comment.

Road miners and distributors protocol - (current protocol)

Here we explain how road miners are rewarded. There are a few important guidelines that the protocol was built to obey to:

1. Early adopters should be rewarded more than later adopters. The logic is to encourage users to join at early stages.
2. The reward should be related to the amount of driving a user did. The more one drives, the more s/he is rewarded.
3. One should be rewarded for joining active users. As the user is more active, both the user and the person who exposed him to the service should be rewarded more.
4. The total amount of Zooz distributed to Road miners should be much larger than the amount of Zooz distributed to developers. Without early users the application could not function and therefore, we believe, that early users are the key for the success. La'Zooz community aims to create a fair economy that distributes the wealth between all contributors to its success according to their contribution - and this is one of the main features to it.
5. The total amount of Zooz distributed to Road miners should be smaller than the amount of Zooz that will be needed for the use of the application. If the community will distribute too many Zooz tokens it will cause market flood and no one will buy tokens from the system at later stages. This will create a situation that the Zooz tokens will not have value in the society and there will be little incentive for users to use the application (or to invest in it at an early stage).
6. As long as a region didn't get to critical mass, mining of Road Zooz should continue. That is, for every distance a user drives, he should be rewarded. (in the current scheme this needs to be updated).
7. If a driver picks up more than one rider, he should receive more reward. This is aligned with the vision of La'Zooz that people better share (all) their empty car seats. In any case the reward will be limited by the total ride expenses.

Here we give the details of the protocol and later a simple example of the amount of Road Zooz distributed.

a. The world will be divided to different regions. Each region will operate independently from the others. That means that the critical mass is determined for each region separately. Furthermore, road mining will continue in each region until critical mass is established in that region.
b. At every timestep, the Road Bonus Weight (RBW) is calculated for each user. The RBW is the user's contribution weight in building the network. The Road Zooz mined by every user are proportional to RBW (see below). We denote the i-th user RBW at time t as RBW_i(t). The different factors which contributes to the RBW of each user are explained in points c-e.
c. At every time step, each user trips are calculated in Zooz. This is the amount of Zooz that the user could share with other people when he will rideshare his/her car. We denote this amount for each user by RZ_i(t) where i is an index to denote the user and t represent the time step.
d. Users who spreads the App to active users are rewarded. In each time step the user who spreaded the App get a bonus for trips that the people he spreaded the App to are doing. The bonus equals to 30%(TBD) of the trip and we denote this bonus by BZ_i(t). For example, Joe have spreaded the App to Annie. At time T Joe have made a trip worth 100 zooz and Annie did a trip worth 50 Zooz. Joe's Road Bonus Weight will have two contributions, the trip he did (100) and a bonus from Annie's trip (50*0.3). Namely, Joe will have RBW_{joe}(T) = 100 + 50 *0.3 = 115 and Annie's RBW_{annie}(T) = 50. We emphasize that Annie is not losing from the fact she got the App via Joe.
e. People who ride together in their car with the application open will get a 20% bonus for their RZ. This comes to encourage people to start ride sharing their trips before critical mass is reached. We aim for the application to offer such a service to enable that (not necessarily on real time).
f. The amount of Road Zooz that are being distributed at time step t for the participant i is determined as follows:

(When in Latex the equation will make more sense.)

$$\frac{\widehat{RBW_i(t)}}{4\sum_i RZ_i(t)}\left(\frac{\overline{\sum_i RZ_i(t)} - \overline{\sum_i RZ_i(t-month)}}{30}\right)$$

where bar means a time average over the last week and hat is a time average over the last month. The term in the brackets is proportional to the rate (derivative) that the network is growing and the term out of the brackets is the relative share of user i in the growth. The total amount of Road Zooz that will be distributed at a certain region will be the sum over all users and time steps until critical mass has reached. Because the expression in the brackets is proportional to the derivative, the sum over this expression will converge. The total amount of

Road Zooz that will be distributed to early users in one region will be on the order of the value in Zooz of all trips performed in the day of critical mass if they would have been shared (divided by a factor of order 3).
For example, if 10000 users were using the App when critical mass was achieved and each user trips are valued at 50 Zooz a day on average, the total amount of Zooz that will be distributed will be on the order of 50 * 10000/3 = 500000/3.
The total amount of Road Zooz that will be distributed are proportional to the amount of trips performed by the users community in one day. We estimate that when ride-sharing will be operating, each user will hold in his wallet enough Zooz tokens for several days of trips. This is the amount of Zooz tokens that will be needed in full adaptation. As explained above, the amount of Road Zooz divided for road miners is on the order of one day of trips of the community which is smaller than the amount of Zooz needed in full adaptation.

Road mining example:

In order to get intuition of how Road Zooz will be distributed among the community of early users we show in Fig. 4 the results of a simulation of early users. In this simulation every user makes trips worth a 100 Zooz each day and with some probability spread the App to a new friend. The critical mass was chosen here to be 10000 users. Figure 4 shows that early road miners are rewarded significantly more than late road miners.

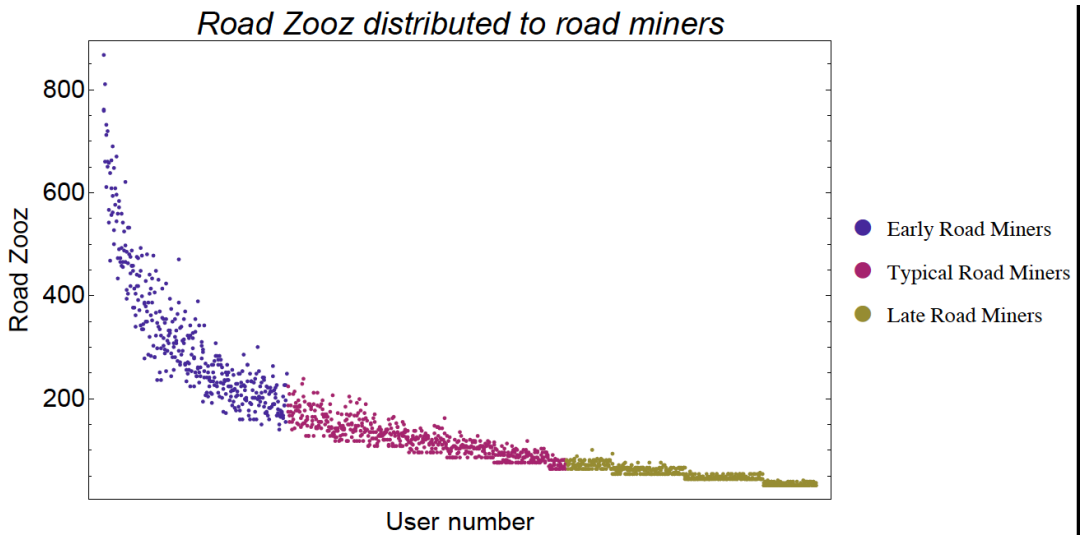

Figure 4: Road Zooz distributed to users. Each dot is a road miner where the x axis denotes the time each user joined the App.