

«Garbage collector»

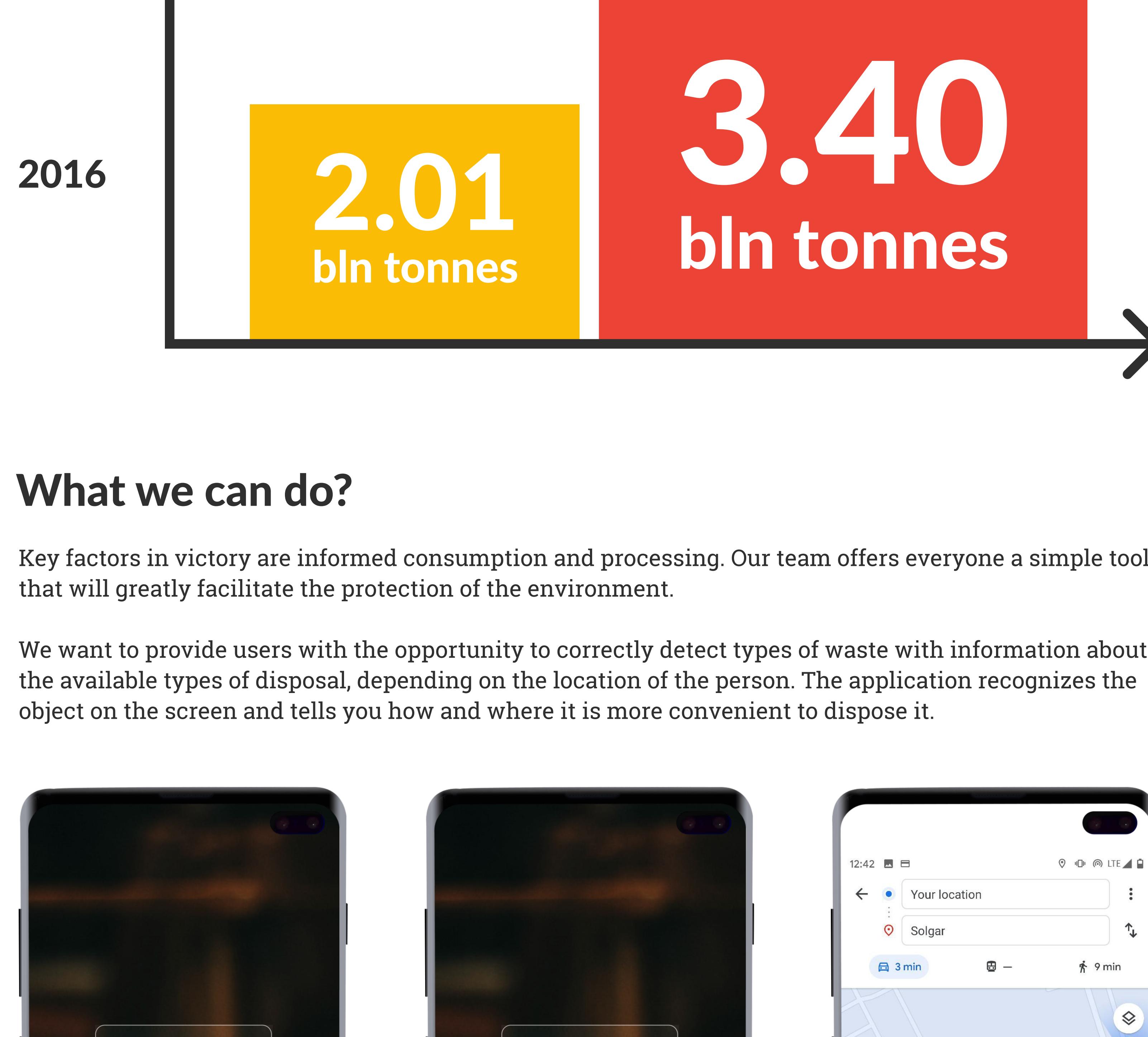
An easy way to make
the world **cleaner**



«Winter is coming»

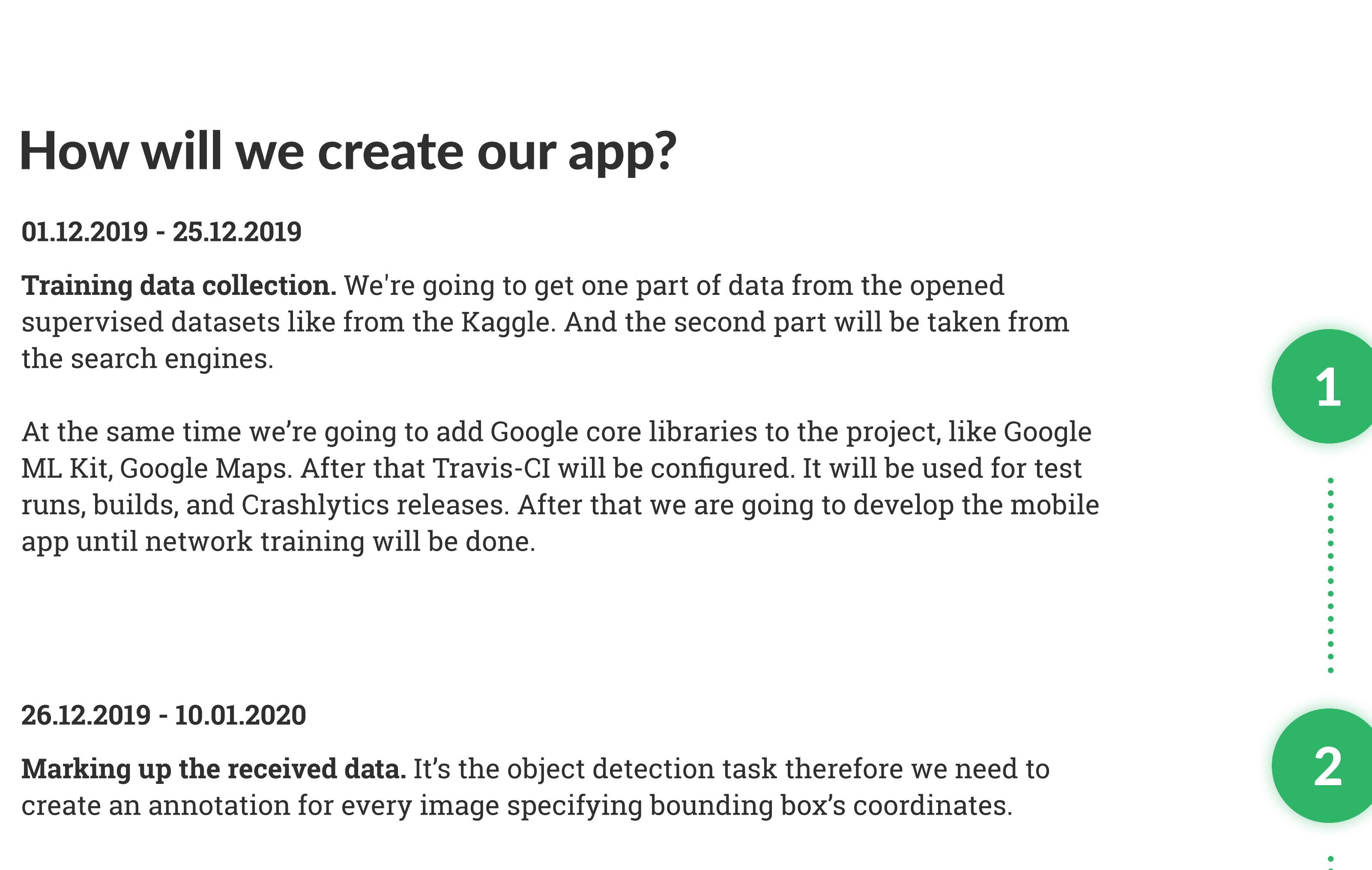
Do you know what White Walkers and "winter is coming" are really mean in "Game of Thrones"? George Martin said in an interview to the New York Times that he conceived his story as a metaphor for an impending environmental disaster. And he is not so dramatic.

We all know that garbage production is growing and landfills are taking up more and more space on the planet. We know about the large spot of garbage with the size of an entire country floating on the Pacific Ocean. We know that garbage pollutes water and air, causing a variety of diseases.



Garbage takes over the world

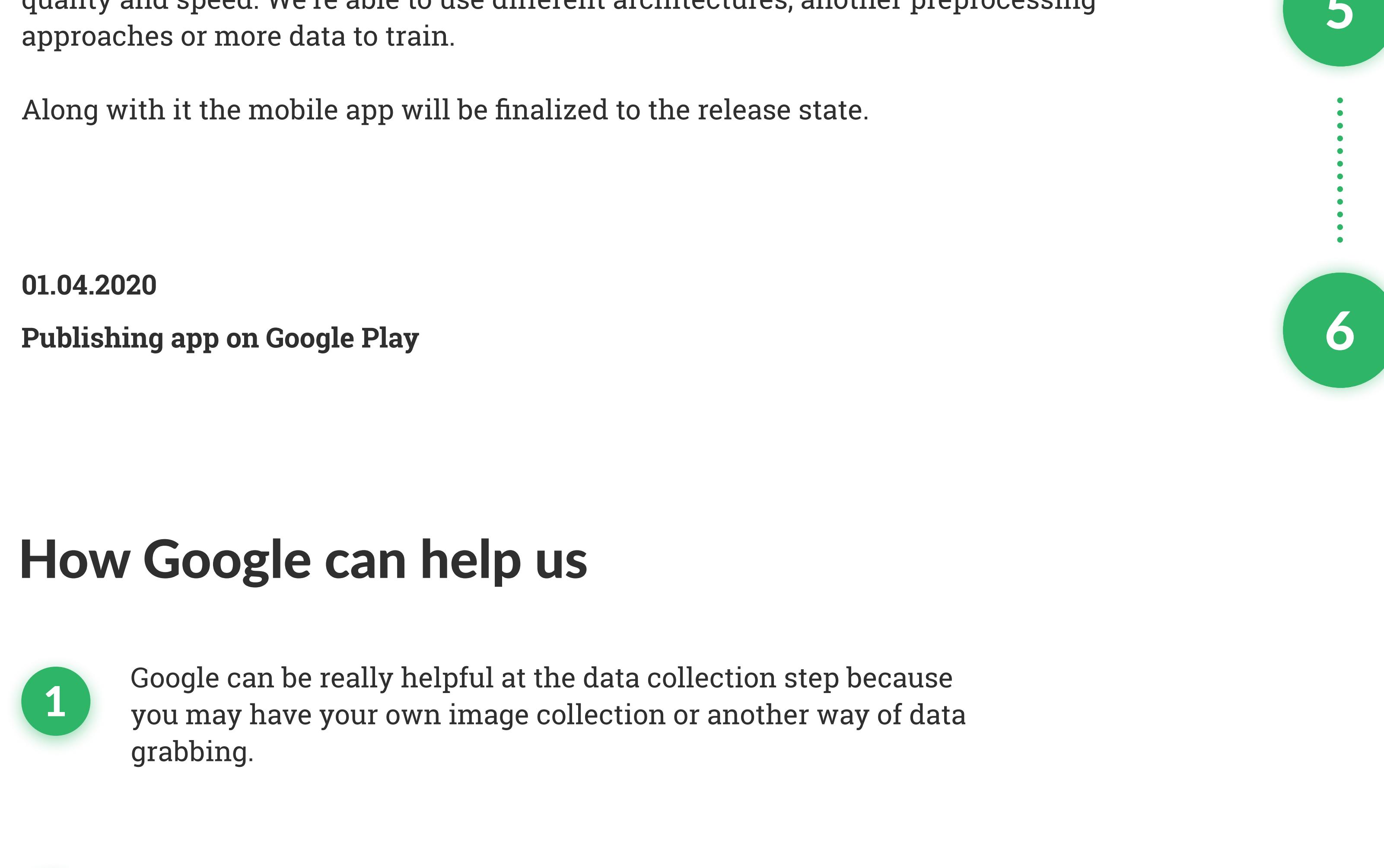
We all know about this, but garbage is still taking over the world. The World Bank estimates that waste generation will increase from 2.01 billion tonnes in 2016 to 3.40 billion tonnes in 2050. At least 33% of this waste is mismanaged globally today through open dumping or burning.



What we can do?

Key factors in victory are informed consumption and processing. Our team offers everyone a simple tool that will greatly facilitate the protection of the environment.

We want to provide users with the opportunity to correctly detect types of waste with information about the available types of disposal, depending on the location of the person. The application recognizes the object on the screen and tells you how and where it is more convenient to dispose it.



You just take a photo

Our app find the right waste recycling point

And shows you the route

We are sure that this will help develop a culture of recycling waste around the world, especially in countries where garbage seeps into the ground and poisons the air, rather than being recycled and used again.

How will we create our app?

01.12.2019 - 25.12.2019

Training data collection. We're going to get one part of data from the opened supervised datasets like from the Kaggle. And the second part will be taken from the search engines.

At the same time we're going to add Google core libraries to the project, like Google ML Kit, Google Maps. After that Travis-CI will be configured. It will be used for test runs, builds, and Crashlytics releases. After that we are going to develop the mobile app until network training will be done.

26.12.2019 - 10.01.2020

Marking up the received data. It's the object detection task therefore we need to create an annotation for every image specifying bounding box's coordinates.

11.01.2020 - 31.01.2020

Data preprocessing. It's important to be able to augment our dataset: to make it more effective without acquiring loads of more training data. There are lots of approaches for data augmentation as simple as rotations, filters and noise or as complicated as applying neural style transfer. Changing the makeup of our data we can improve our performance and increase our training set size.

01.02.2020 - 29.02.2020

Network training. We're going to use pretrained state-of-the-art mobile CNN architectures. Also we are inspired of MNasNet's results.

After that we are going to integrate network training results into mobile app and update the UI.

01.03.2020 - 31.03.2020

Fine tuning. We'll continue model's finetuning until we won't get an acceptable quality and speed. We're able to use different architectures, another preprocessing approaches or more data to train.

Along with it the mobile app will be finalized to the release state.

01.04.2020

Publishing app on Google Play

1

2

3

4

5

6

How Google can help us

1 Google can be really helpful at the data collection step because you may have your own image collection or another way of data grabbing.

2 We want to provide information to our users about companies that take things and garbage for recycling and reusing. So the least complicated way is getting this information from the Google My Business directory and filter most relevant companies.

3 Google has unlimited opportunities for training models and it's totally important for our task because it takes significant amount of time. Google Colab allows you to train your models for 12 hours however sometimes it's not enough. Google can help us here too providing comprehensive power for training our models.

Bogdan Popov

Android software engineer

Elena Devyataykina

Data scientist

I have more than 3 years of experience building applications. Currently I am working on modern banking app and developing contactless pay features. Really love concurrency and Kotlin.

I'm working in a bank and trying to make lawyers life easier. Besides that I'm so interested in product analysis and making research for checking different product hypothesis.

Alex Sigeev

Frontend developer

I like to test product hypotheses, work with the user interface and make cool presentations.

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

51

52

53

54

55

56

57

58

59

60

61

62

63

64

65

66

67

68

69

70

71

72

73

74

75

76

77

78

79

80

81

82

83

84

85

86

87

88

89

90

91

92

93

94

95

96

97

98

99

100