CLAIMS

1. A supply apparatus comprising:

an input conveyor configured to input an article;

a receiving conveyor configured to receive the article that the input conveyor inputs;

a downstream conveyor configured to transfer the articles that are spaced apart

a camera configured to photograph the article placed on the receiving conveyor; and

a processor configured to:

extract an article region where the article appears, from a photography image that the camera photographs;

set an area ratio detection region including the receiving conveyor in the photography image;

divide the area ratio detection region into a plurality of divisional regions;

calculate, in the each of the area ratio detection regions, an area ratio that the article region indicates in the photography image, based on the article region;

stop the input conveyor, based on the area ratio; and

set a stop time for stopping the input conveyor, based on the area ratio of the divisional region in a placement region where the article placed on the receiving conveyor appears,

wherein the processor is further configured to:

estimate a downstream transfer time during which the article placed on the receiving conveyor passes through the

downstream conveyor, based on the area ratio of the divisional region in the placement region; and

set the stop time, based on the downstream transfer time.

2. The supply apparatus of Claim 1, wherein the processor is configured to stop the input conveyor, based on the area ratio of the divisional region in a falling region where the article falls from the input conveyor.

3. The supply apparatus of Claim 2, wherein the processor is configured to stop the input conveyor, in a case where an average value of the area ratios of the divisional regions in the falling region is equal to or greater than a predetermined threshold.

4. The supply apparatus of any one of Claims 1 to 3, wherein the processor is configured to:

estimate a falling wait time from when the input conveyor is driven until when the article falls onto the receiving conveyor, based on a detection result of detection of a sign of falling from the input conveyor to the receiving conveyor; and

set the stop time, also based on the falling wait time.

5. The supply apparatus of Claim 4, wherein the processor is configured to set, as the stop time, a time acquired by subtracting the falling wait time from the downstream transfer time.

6. The supply apparatus of Claim 4 or 5, further

comprising a falling sign detection sensor configured to detect a sign of falling from the input conveyor to the receiving conveyor, and to output a result of the detection.

7. The supply apparatus of Claim 6, wherein

the falling sign detection sensor includes a first falling sign detection sensor configured to detect the article placed at a predetermined position on the input conveyor, and a second falling sign detection sensor configured to detect the article placed at a position further on an upstream side than the predetermined position, and

the result of the detection includes a first detection result from the first falling sign detection sensor, and a second detection result from the second falling sign detection sensor.