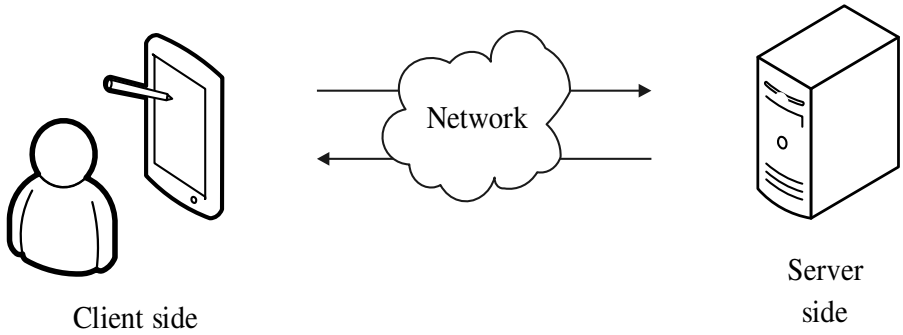

Fig. 1

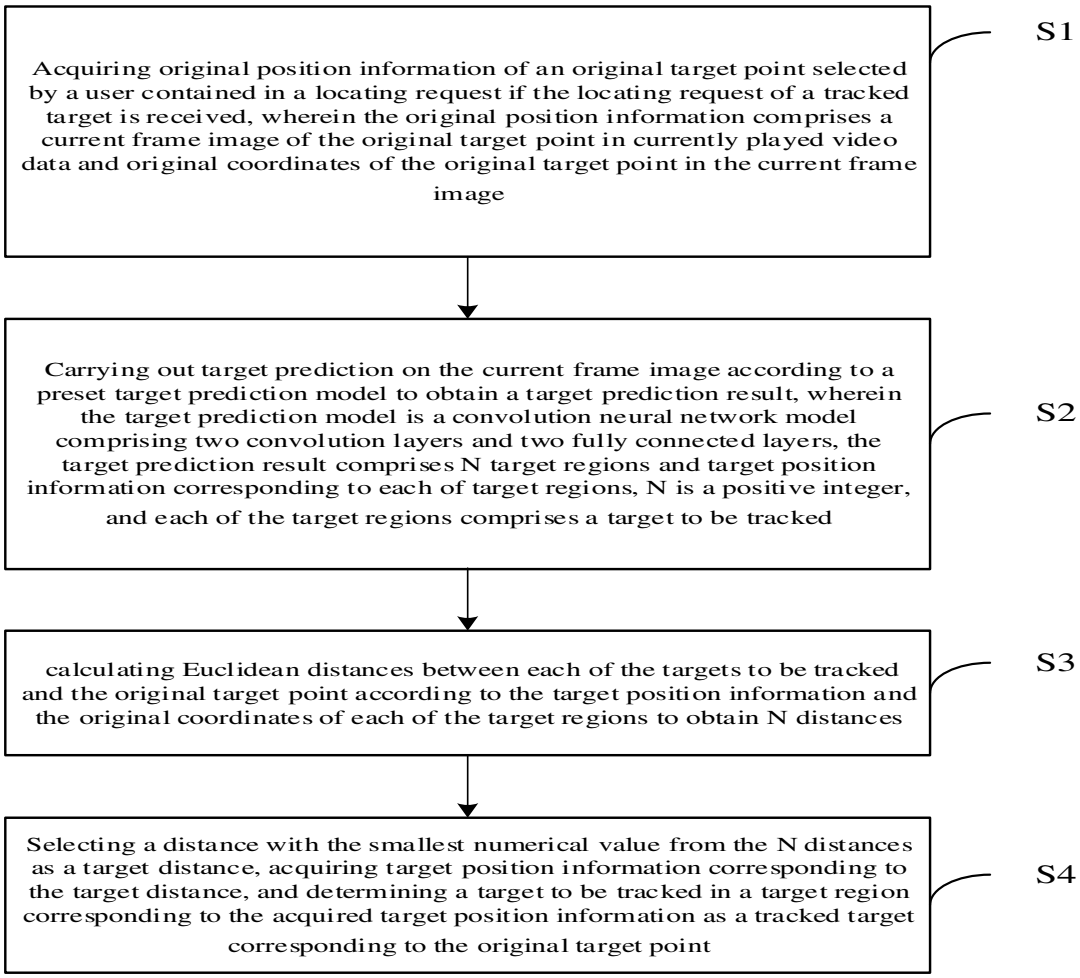
Acquiring original position information of an original target point selected by a user contained in a locating request if the locating request of a tracked target is received, wherein the original position information comprises a current frame image of the original target point in currently played video data and original coordinates of the original target point in the current frame image
S1
Carrying out target prediction on the current frame image according to a preset target prediction model to obtain a target prediction result, wherein the target prediction model is a convolution neural network model comprising two convolution layers and two fully connected layers, the target prediction result comprises N target regions and target position information corresponding to each of target regions, N is a positive integer, and each of the target regions comprises a target to be tracked
S2
calculating Euclidean distances between each of the targets to be tracked and the original target point according to the target position information and the original coordinates of each of the target regions to obtain N distances
S3
Selecting a distance with the smallest numerical value from the N distances as a target distance, acquiring target position information corresponding to the target distance, and determining a target to be tracked in a target region corresponding to the acquired target position information as a tracked target corresponding to the original target point
S4

Fig. 2

Aiming at each target position information, calculating center point coordinates $\left(x_{i_0}, y_{i_0}\right)$ of a target region corresponding to the ith target position information according to the following center point coordinate formula:

$$\left(x_{i_0}, y_{i_0}\right) = \left(x_i + \frac{w_i}{2}, y_i + \frac{h_i}{2}\right)$$

, wherein i is a positive integer, and $0<i\leq N$, x_i is an abscissa of upper left coordinates of the target region corresponding to the ith target position information, y_i is an ordinate of the upper left coordinates, w_i is a width of the target region corresponding to the ith target position information, and h_i is a height of the target region corresponding to the ith target position information

S301

Calculating an Euclidean distance d_i $d_i = \sqrt{\left(\Delta x - x_{i_0}\right)^2 + \left(\Delta y - y_{i_0}\right)^2}$ between the ith center point coordinates $\left(x_{i_0}, y_{i_0}\right)$ and the original coordinates $\left(\Delta x, \Delta y\right)$ for each of the center point coordinates

S302

Fig. 3

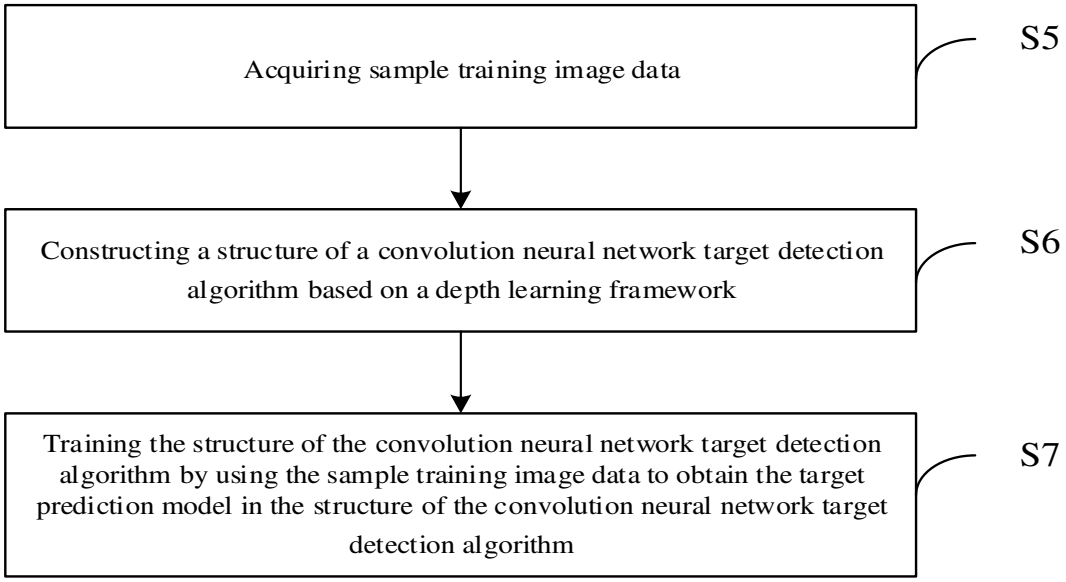
Acquiring sample training image data
S5
Constructing a structure of a convolution neural network target detection algorithm based on a depth learning framework
S6
Training the structure of the convolution neural network target detection algorithm by using the sample training image data to obtain the target prediction model in the structure of the convolution neural network target detection algorithm
S7

Fig. 4

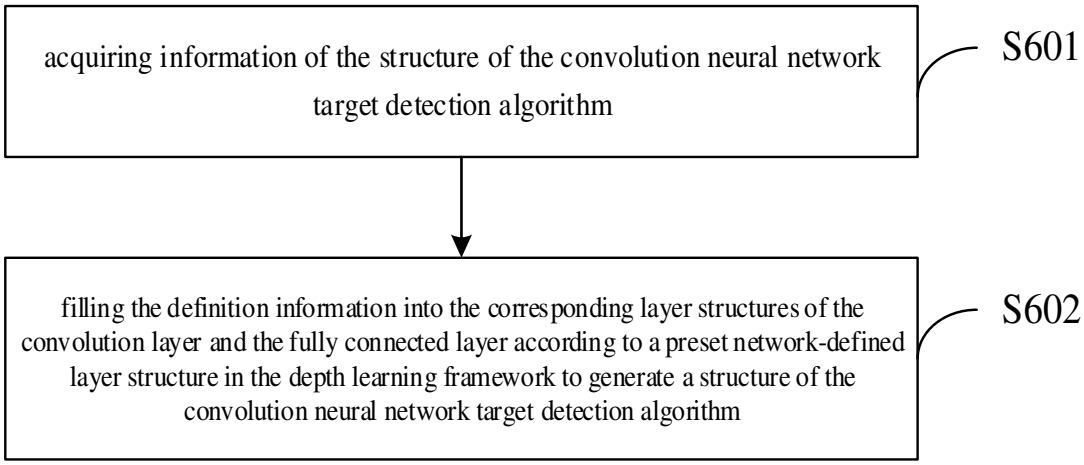
acquiring information of the structure of the convolution neural network target detection algorithm
S601
filling the definition information into the corresponding layer structures of the convolution layer and the fully connected layer according to a preset network-defined layer structure in the depth learning framework to generate a structure of the convolution neural network target detection algorithm
S602

Fig. 5

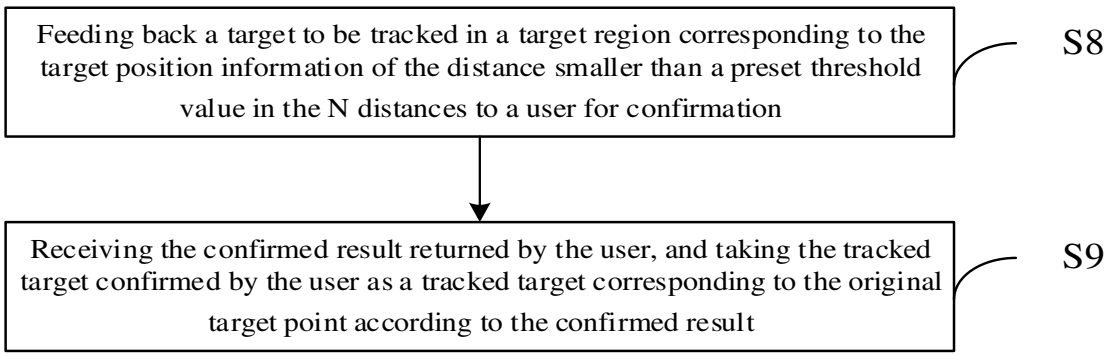
Feeding back a target to be tracked in a target region corresponding to the target position information of the distance smaller than a preset threshold value in the N distances to a user for confirmation
S8
Receiving the confirmed result returned by the user, and taking the tracked target confirmed by the user as a tracked target corresponding to the original target point according to the confirmed result
S9

Fig. 6

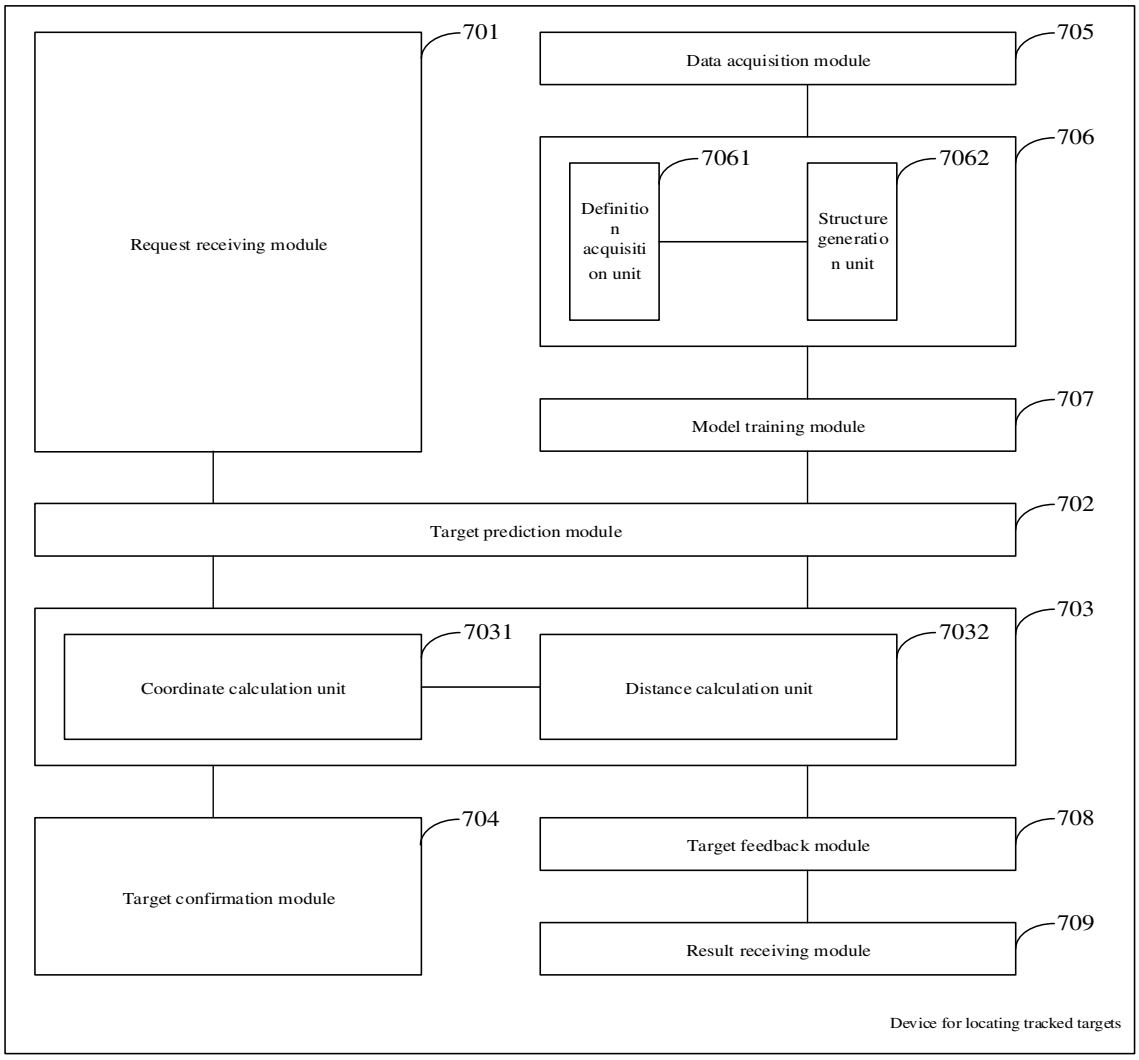
701
Request receiving module
705
Data acquisition module
706
7061
Definitio
n
acquisiti
on unit
7062
Structure
generatio
n unit
707
Model training module
702
Target prediction module
703
7031
Coordinate calculation unit
7032
Distance calculation unit
704
Target confirmation module
708
Target feedback module
709
Result receiving module
Device for locating tracked targets

Fig. 7

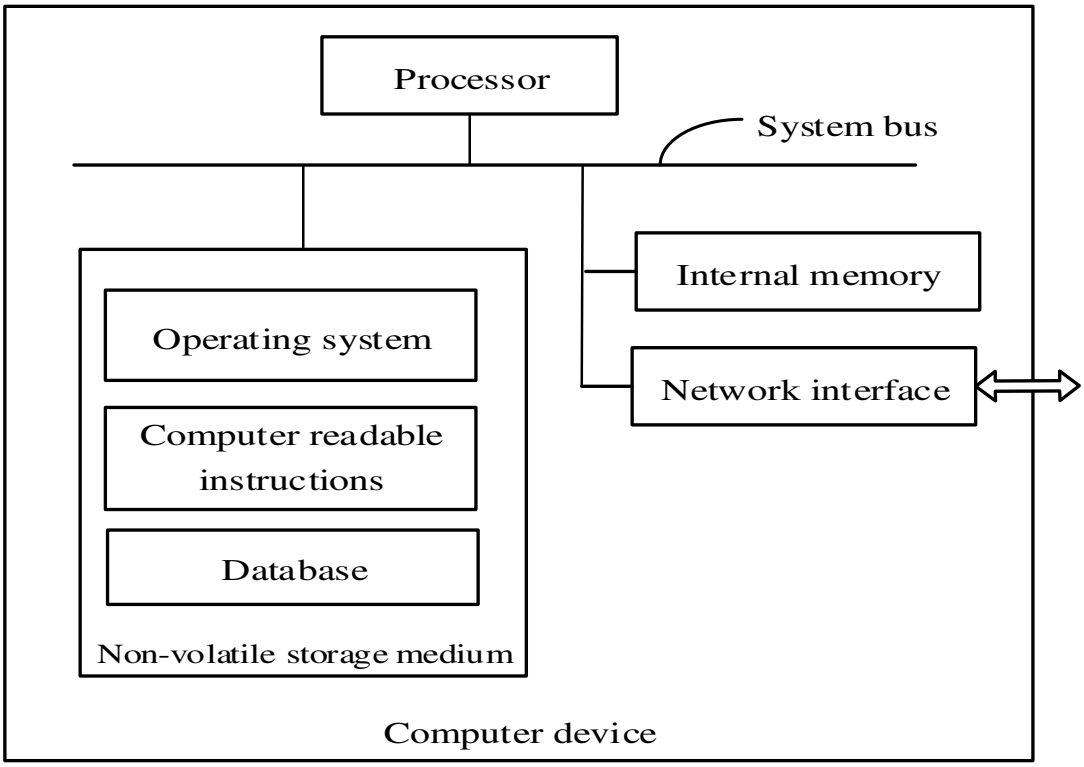
Processor
System bus
Internal memory
Operating system
Network interface
Computer readable instructions
Database
Non-volatile storage medium
Computer device

Fig. 8