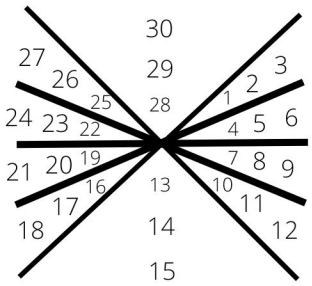
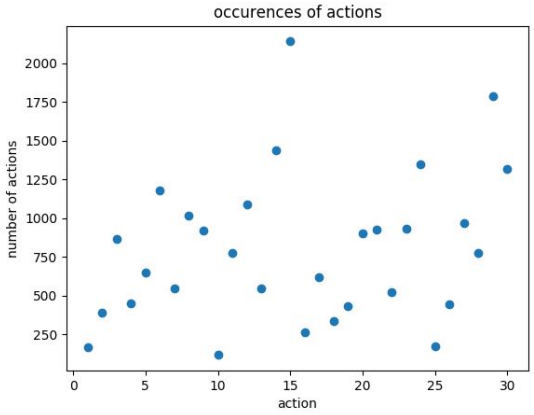
Updated requirements:

Main goal of the project is still to be able to estimate the next action in the football game from video sequence. To achieve it several substeps should be done and the system be improved with new features.

Ball detection:
Since dataset and other parts of the program heavily relies on the position of the ball, a separate neural network to detect the ball was created. New ball detector is based on using transfer learning from a pre-trained YOLOv3 model in the training. We gathered a collection of 336 (266 train + 70 validation) match image samples and marked the positions of the ball in them. It showed **better** performance than our previous approach which used OpenCV.

Balancing the dataset:
Since our data is a sequenced, traditional approaches to augment the dataset are not feasible. Therefore the dataset was balanced by splitting the sectors of action to more sectors as follows:





Our next steps are now to compare our approach to standard VGG, make LSTM network more complex and implement transformation.