INTRODUCTION

Flood disasters often occur suddenly, especially in riverbank areas. In 2021 the city of Banjarmasin was hit by a large flood, causing casualties and property. This flood occurs because of high tides in low-lying areas, especially on the banks of the Barito and Martapura rivers, as well as several of their tributaries (Antara, 2022). This flood occurs throughout the year from January 2021 to December 2021. The cause of the flood is due to high tides accompanied by high rainfall, so that the overflowing river cannot accommodate water (Hidayatullah, 2021).

The city of Banjarmasin is an area with conditions that are often inundated by water, puddles of water are often seen on the streets of villages and highways. This is caused by the tide of the river that surrounds the city. The estuary of this river is the Java Sea, the ebb and flow of river water is a condition of rising and falling sea levels. Tides are caused by the attraction of the moon and sun to the earth. When the full moon or the beginning of the moon the highest tide occurs because the attraction of the moon/sun to the earth reaches its maximum point, in contrast to when the crescent moon occurs only small tides, because the attraction of the moon is at its lowest point. (Anwar & Mawardi, 2021).

Flood events can be avoided by early prevention, one of which is the manufacture of early warning tools. Monitoring of the river water level is expected to be carried out through an early warning system tool, then prediction with linear regression analysis so that it can predict the occurrence of flood hazards.

Early warning system tools for monitoring and predicting river water level rise have been developed in the form Internet of things (IoT) (Valentin, 2021; Sutarti et al., 2022). IoT is internet connectivity that is always connected at all times on a network, so that information about physical objects can be seen, heard, as data from ultrasonic sensor. IoT as a flood early warning system functions as a water level detection system at any time. IoT production is more economical and safer, because it utilizes a ultrasonic sensor-based microcontroller. The increase in river water level can be informed quickly to the public accompanied by an alarm sound (Windiastik et al., 2019).

Research on IoT as an early warning system and monitoring of rising river water levels has been carried out, indicators of research findings indicate that water level rise can be predicted and monitored using IoT, the information resulting from ultrasonic sensor forwarded to the website and LCD in real time, water rises can continue followed until it reaches a critical level (Wicaksono et al., 2021; Baskoro et al., 2021).

IoT for early warning of river water level rise is a simple and inexpensive system that can be used by many people on the banks of the river in Banjarmasin City. Riverside communities (Putro, Jumriani, et al., 2020) The city of Banjarmasin also has access to traditional information management, in the form of loudspeakers located at the top of each Mosque. Access to information in the Mosque can be used to transmit river water level information to the public on the website and sound alarms.

The problem of this research is to determine the effect of surface elevation on each time change based on the results of monitoring with ToT, and to determine the prediction of river water level rise generated by IoT with linear regression. The variables studied were time as variable X (dependent variable) and river water level as variable Y (independent variable). The research hypotheses are: There is no effect between river water level on an IoT-based early warning system (Ho), and there is an effect between river water level on an IoT-based early warning system (Ha).