

International Virtual Science Symposium

# CAMPUS WATER QUALITY MONITORING SYSTEM



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# MOTIVATION OF OUR RESEARCH

The strange taste in the water dispensers of the school on Monday.



# PROBLEMS WE SEE



**Drinking water  
safety concerns**

**The odd  
smell in  
school  
water  
dispensers.**

**Water Quality  
Monitoring  
problems**

**The school  
fails in  
monitoring  
water  
quality.**

**Failure in water  
quality trust**

**The high  
proportion  
of students  
drinking  
bottled  
water.**

**Idea : Can we ensure access to safe drinking water for all ?**

# RELATED SDGS OF OUR RESEARCH

6



## HEALTH

Clean water and  
sanitation

9



## SCHOOL

Availability in affordable,  
sustainable and innovative  
infrastructure

12



## STUDENTS

Responsible  
consumption and  
production

# CAN WE ?

“ Research → Data platform → Share → All win ! ”

Do our research

&

Benefit with  
other schools



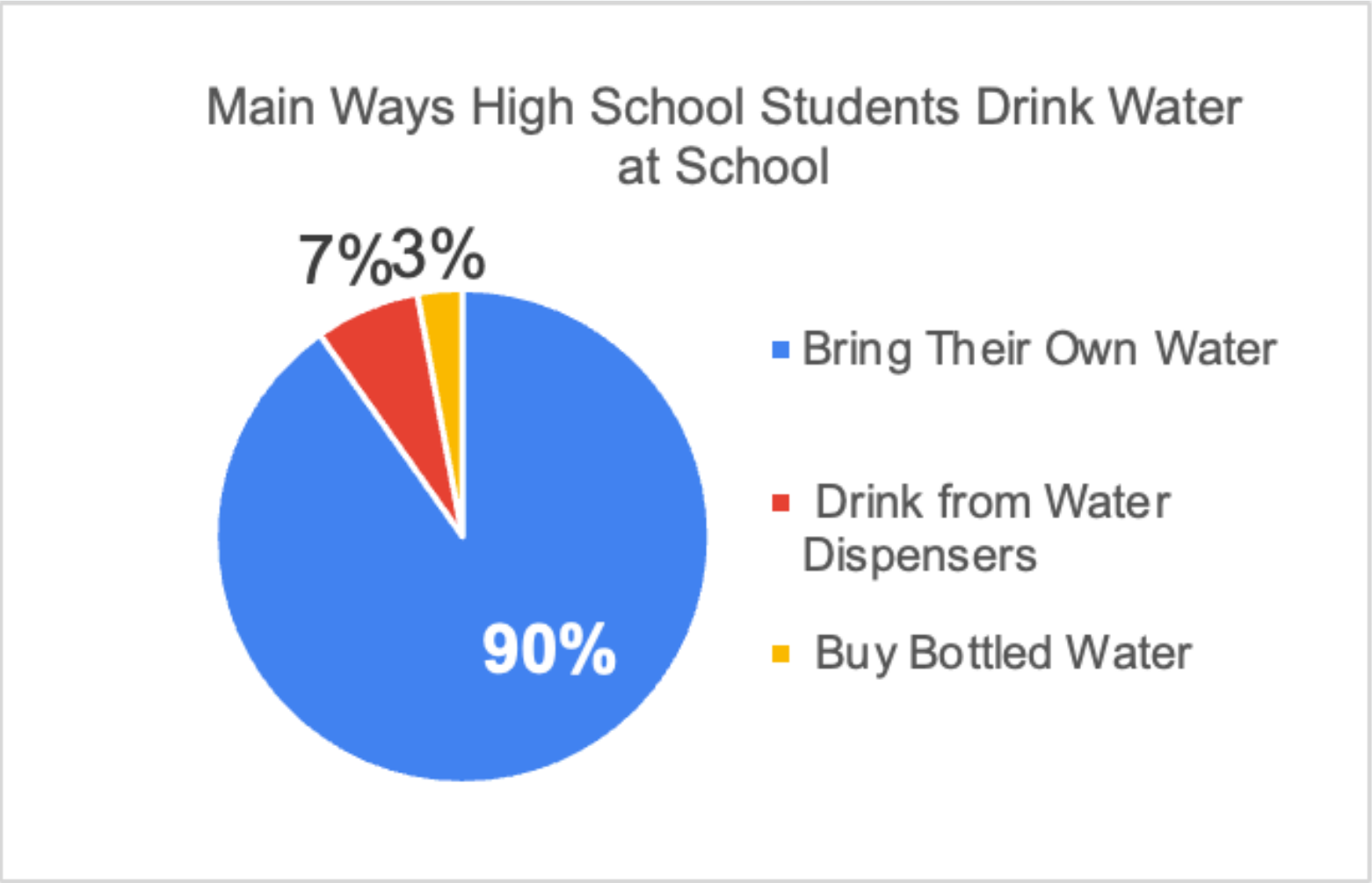
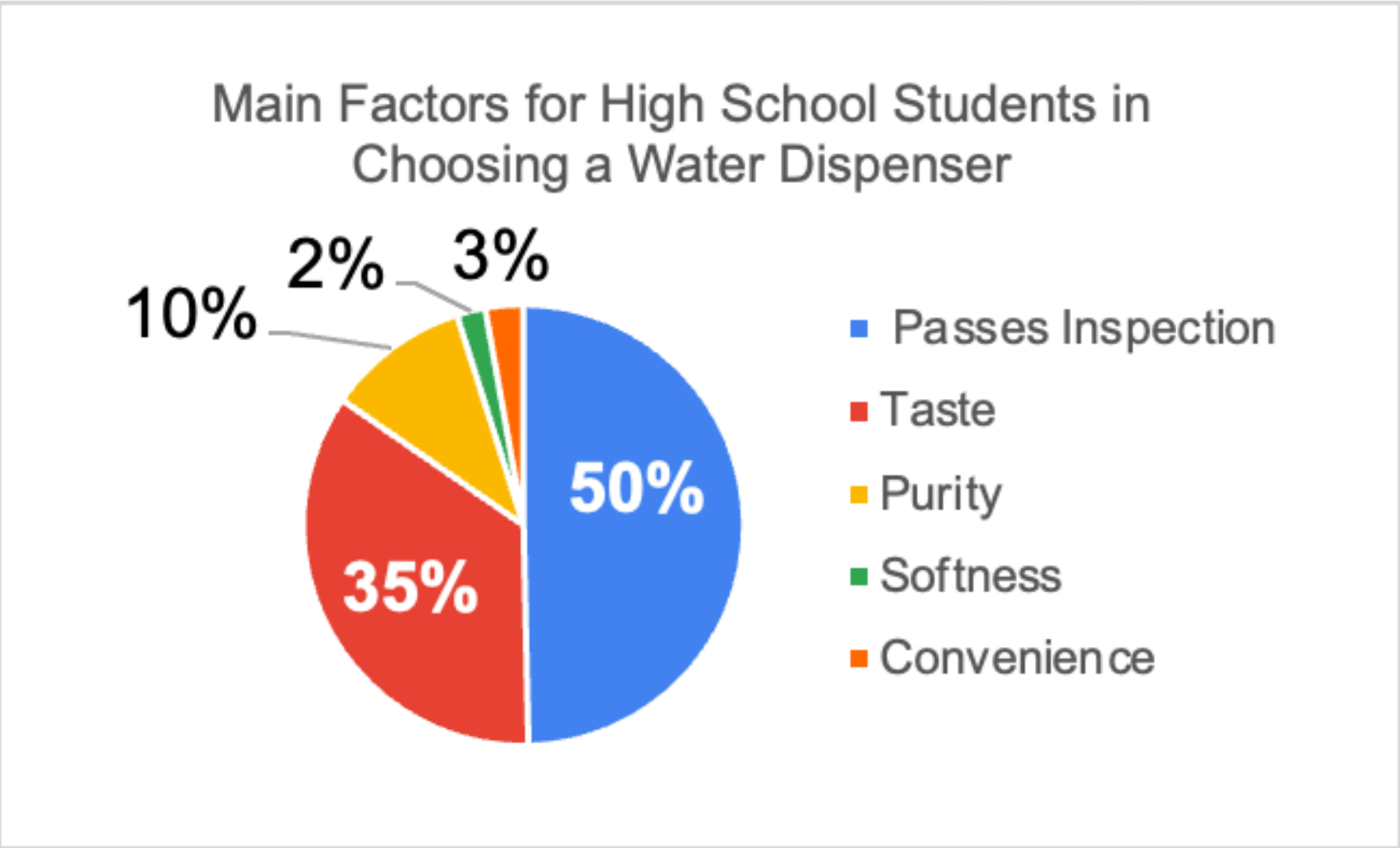
# RESEARCH METHODS



- (1) Water quality testing on campus water dispensers.**
- (2) Survey on students' perceptions of water quality**
- (3) Comparison analysis of TDS test results and questionnaire data**
- (4) Development and application of a water quality monitoring device**

# RESULT

## (1) Questionnaire survey

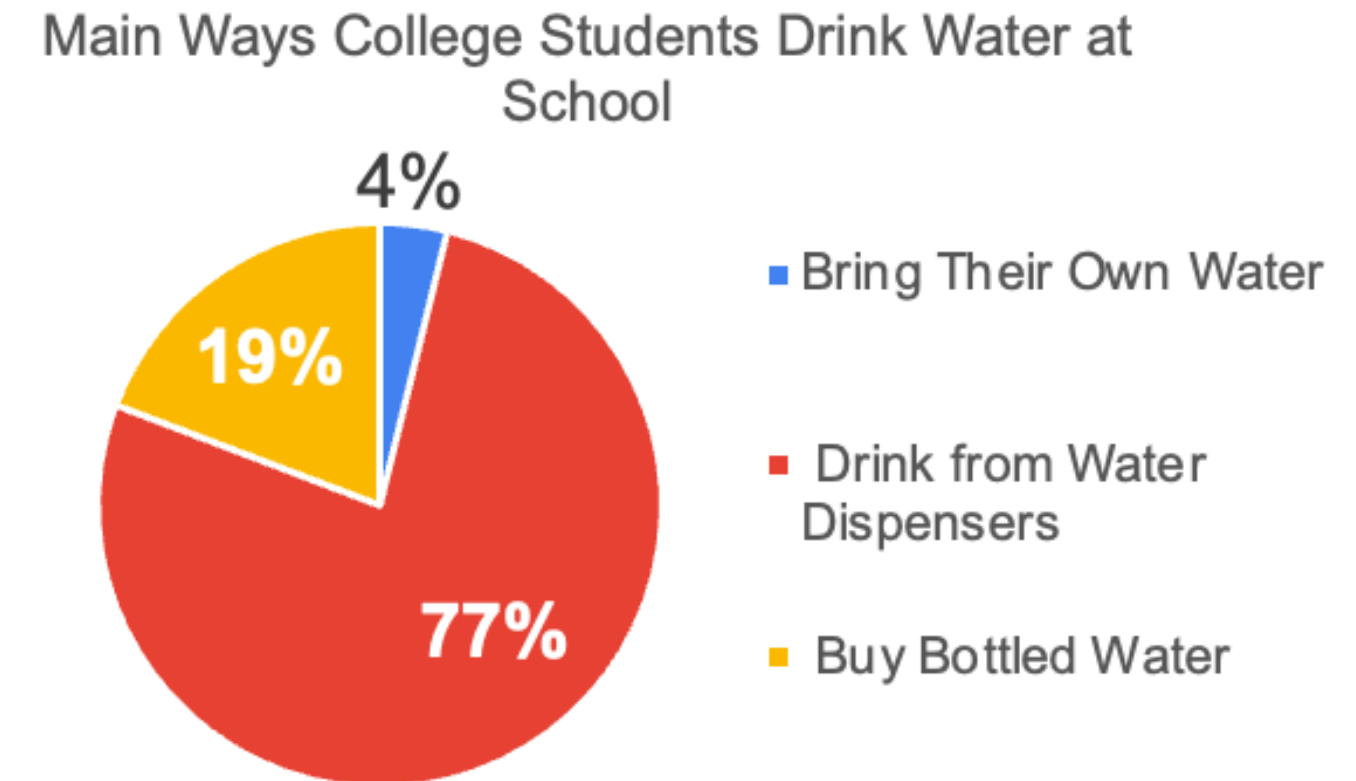
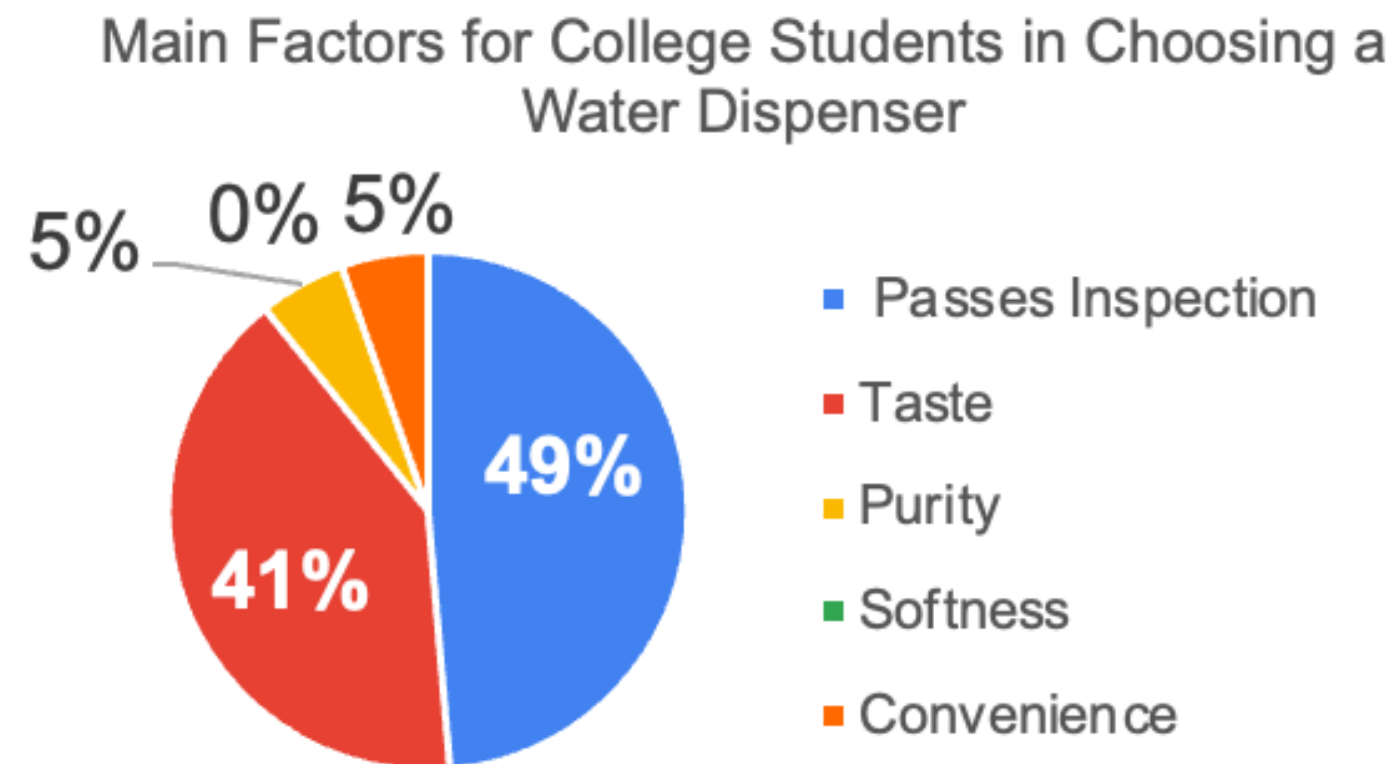


Survey on High School Students' Primary Factors for Using Water Dispensers and Main Drinking Methods



# RESULT

## (1) Questionnaire survey

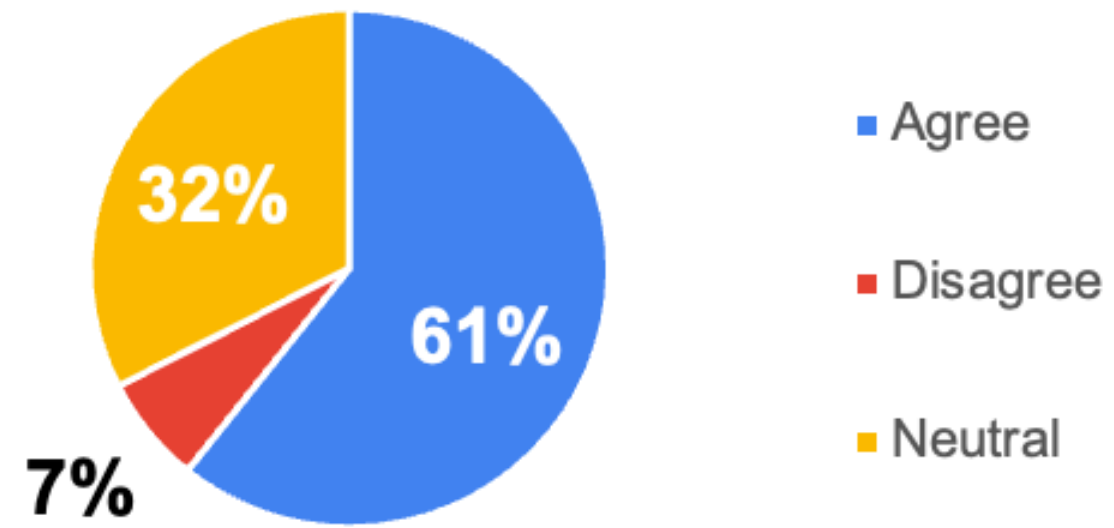


Survey on University Students' Primary Factors for Using Water Dispensers and Main Drinking Methods

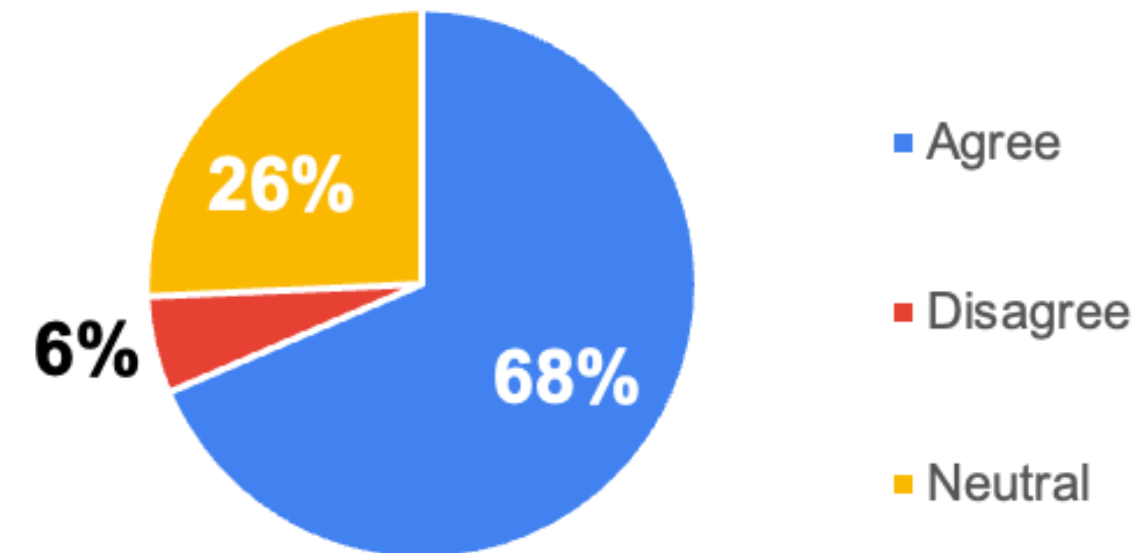
# RESULT

## (1) Questionnaire survey

High school students believe that the "Good Water" certification promoted by water dispenser companies can increase confidence in drinking water.



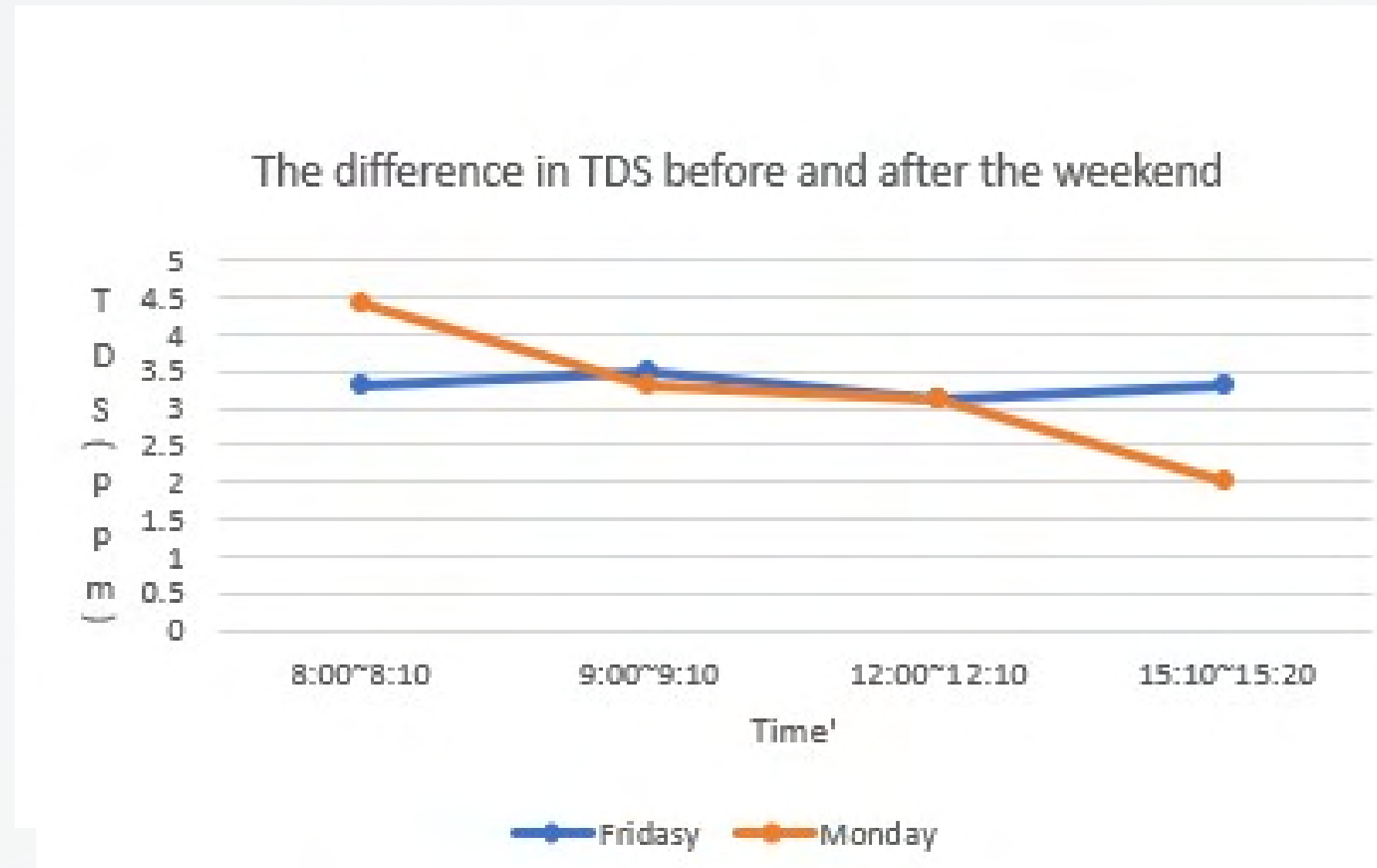
College students believe that the "Good Water" certification promoted by water dispenser companies can increase confidence in drinking water.



### Comparison of High School and University Students' Views on the Good Water Label

# RESULT

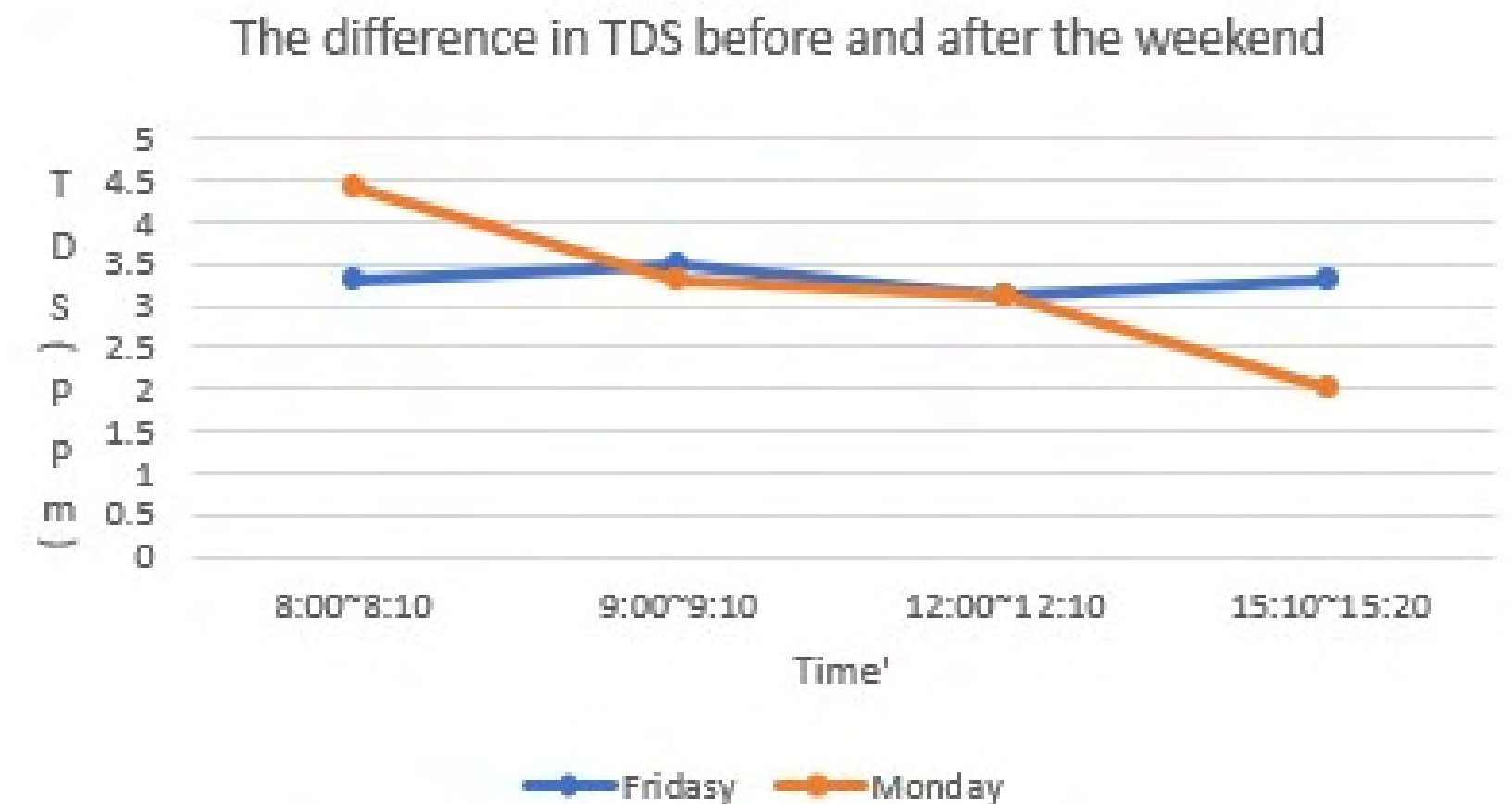
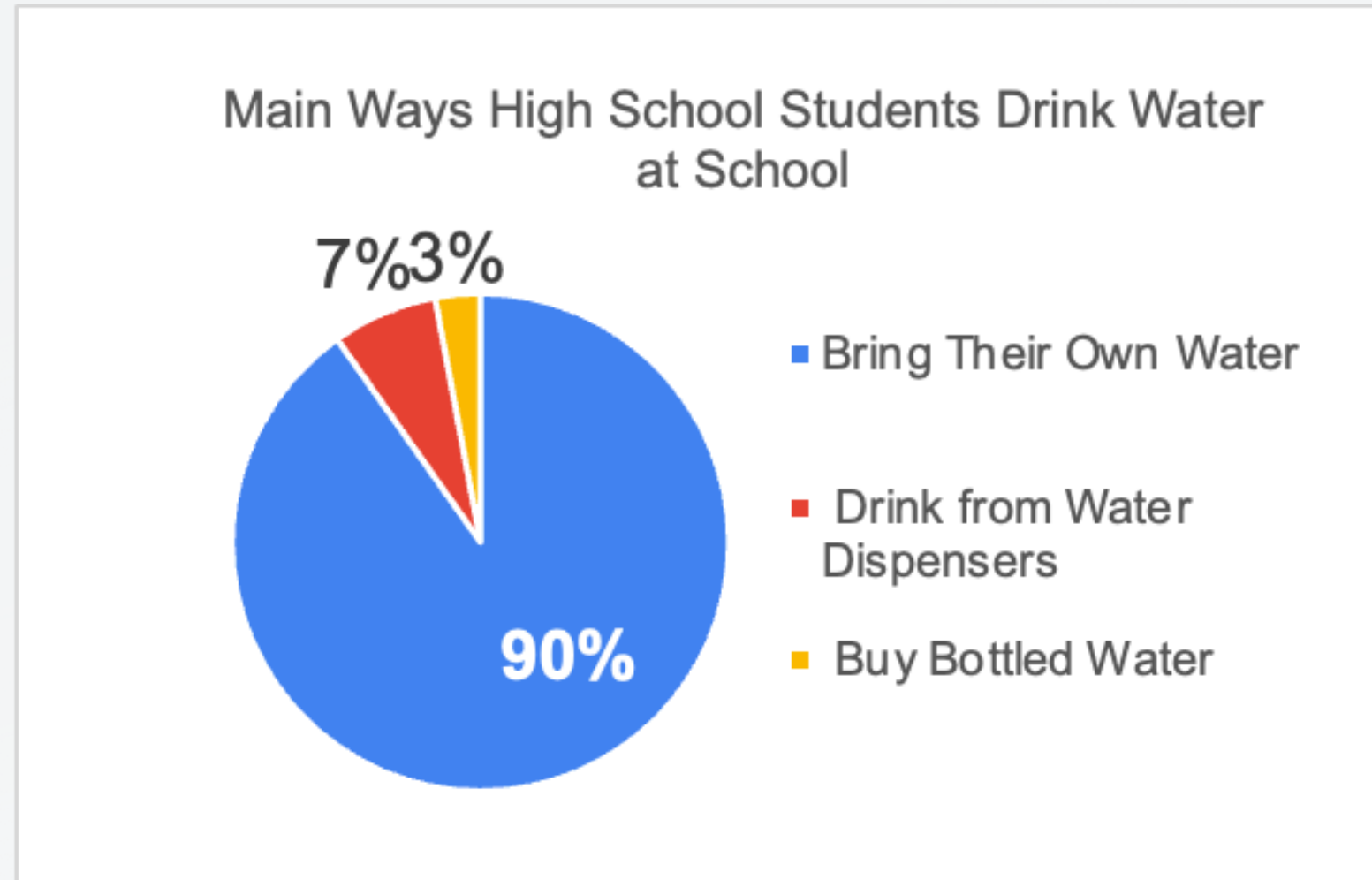
## (2) TDS water quality testing



Changes in "TDS Value of Water Dispensers" Between the Weekend and Monday

# RESULT

## (3) Data comparison and analysis



Although the TDS value is low, students still do not trust the water dispensers



# **RESULT**

## **(4) Discussion**

**(1) Water Quality Testing Scope and Technical Challenges**

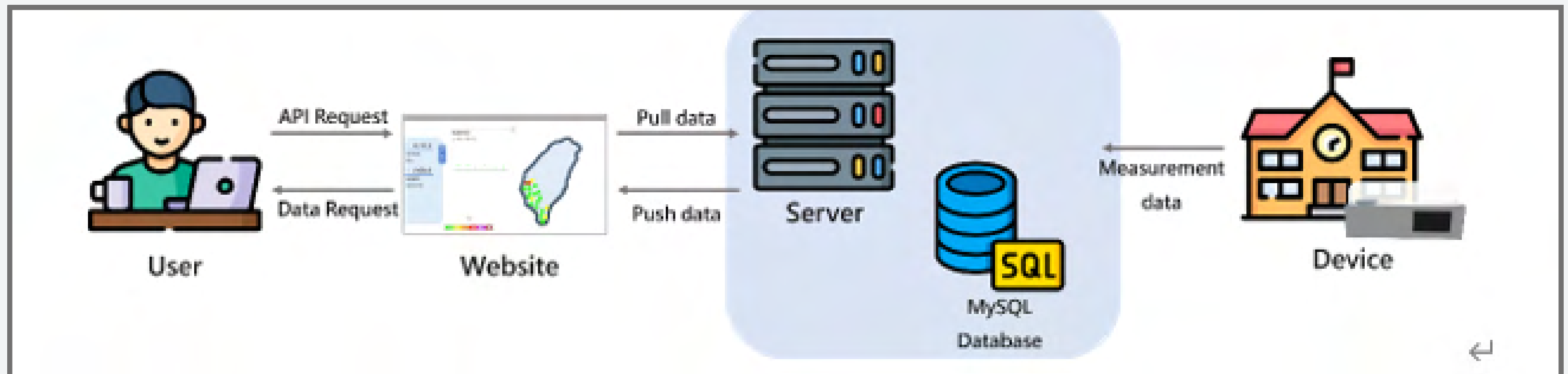
**(2) Funding and Platform Maintenance Issues**

**(3) Future Development Directions**



# RESEARCH PROCESSES

An ideal method



▲ **User**

▲ **Online platform**

▲ **SQL database and server**

▲ **Automatically collected data**

# **SOLUTIONS:** Water-quality-monitoring device



**Install sensors.**



**Real-time data display.**



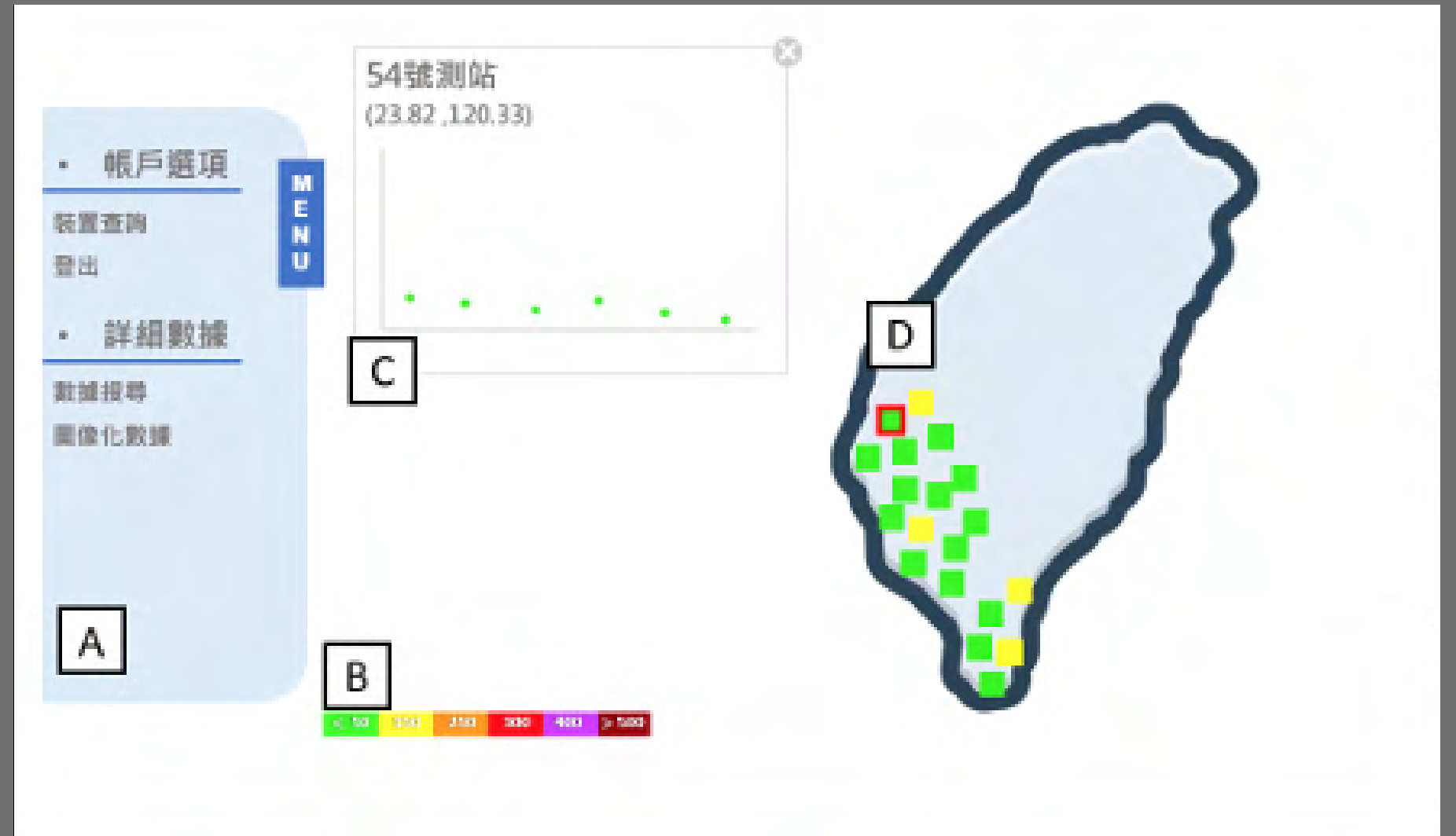
**Automatically upload to the school online platform.**



**When water quality is abnormal, LED lights go on and the system automatically notifies the school administration.**

# SOLUTIONS

School online platform ►



- Public data display to all schools.
- Integration of data from all water dispensers in the schools.
- Access to historical data at any time to increase user trust.

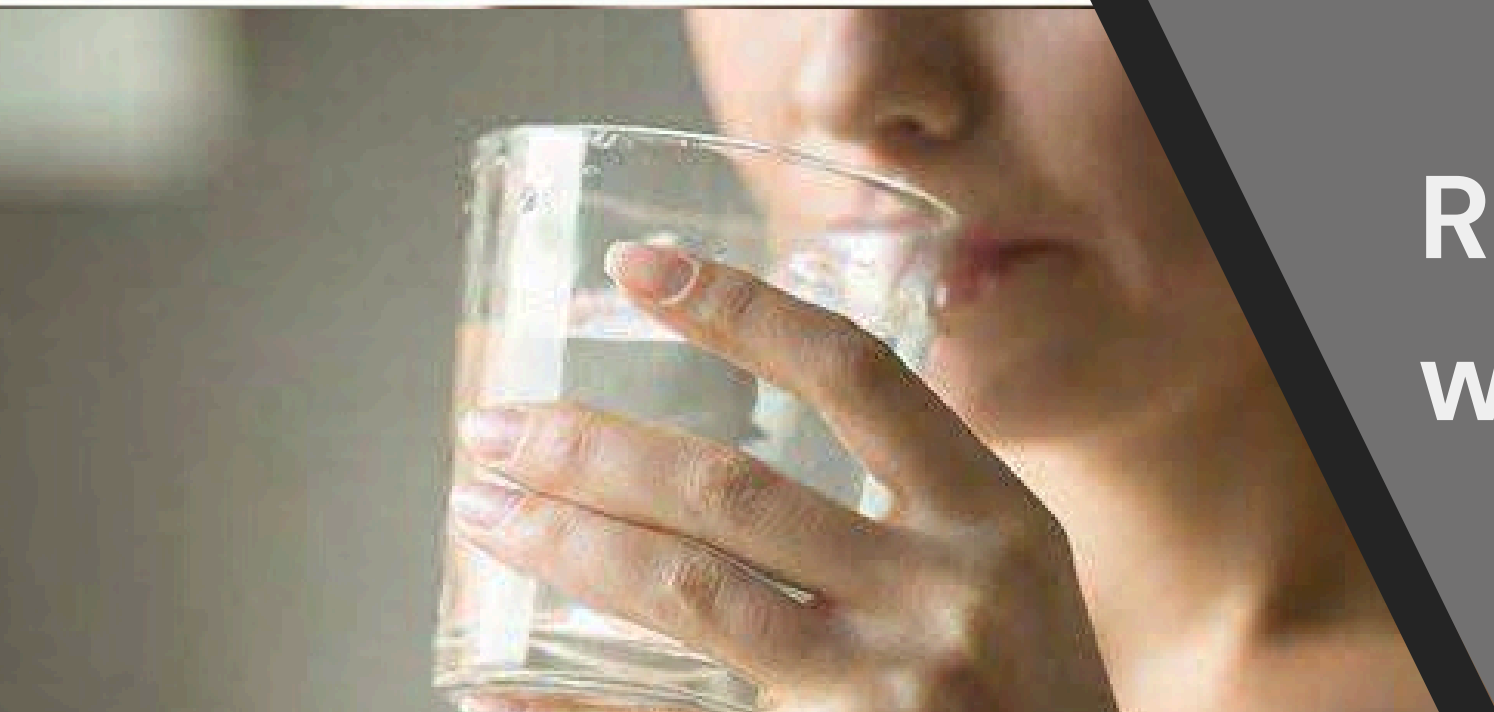
# SOLUTIONS



Real-time display of water quality of all drinking dispensers from all schools.



Public availability of water quality data.



Reduction of the use of bottled water.



# FUTURE DEVELOPMENTS

01

**Set standard water quality for senior high schools in Kaohsiung, Taiwan, to monitor water safety.**



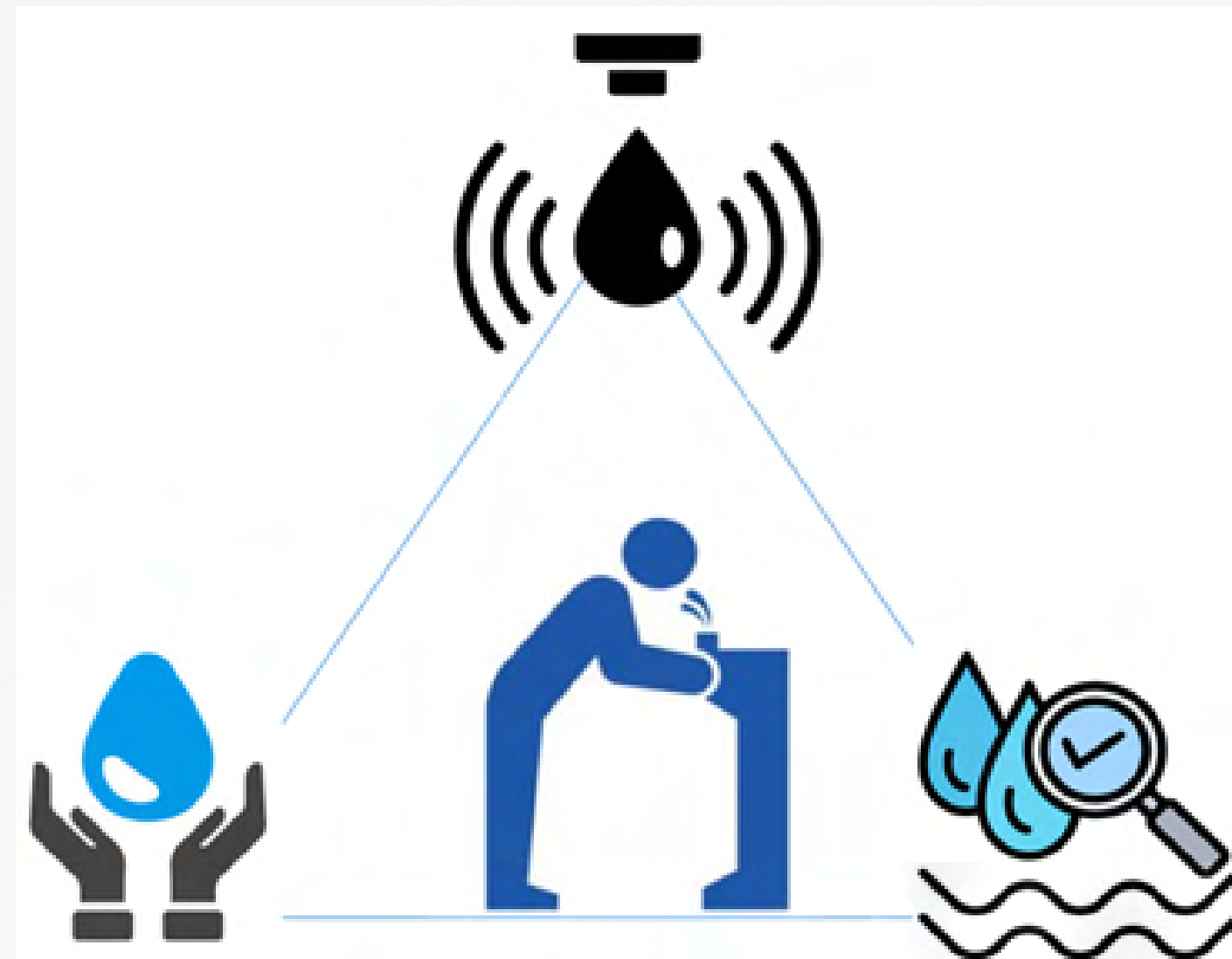


# FUTURE DEVELOPMENTS

02

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**Collect water  
quality data for  
all schools to use.**



# FUTURE DEVELOPMENTS

03

**Build a  
comprehensive  
water quality  
database for all  
senior high schools  
in Kaohsiung,  
Taiwan.**



**THANK YOU**