# Design of a Flow Velocity Meter for Tides in the River

# Using Arduino

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**ABSTRACT**

The Royal Irrigation Department is responsible for managing water availability in Thailand. Many instruments are used to read the data to obtain the needed hydrological data. The instruments that it has applied to measure the velocity of the tide are the flow velocity meters A-OTT C31 that compatible with the audio and numerical displayer Z 41-00. They have been used for 30 years, (1988 - 2018).

Design of a flow velocity meter for tides in the river using Arduino was presented in this paper. It was designed to use as a substitute for the audio and numerical displayer Z 41-00 that were broken. The result of the design and the experimentation show the ability of working together with the flow velocity meters A-OTT C31 and the accuracy of the data acquired from this designed instrument are satisfactory.

**Keyword:** The Royal Irrigation Department, Flow Velocity Meter, Arduinos

**Introduction**

Mechanical velocity meters

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**Materials and methods**

**1. Signal form A-OTT C31**

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| --- | --- |
|  |  |
| **Figure 1** A-OTT C31 | **Figure 2** A-OTT C31 Signal |

**2. Block diagram**



**Figure 3** Block Diagram-

**3. Flowchart**



**Figure 4** Flowchart-

**Results and discussions**

**1. Testing at 20 Hz, 200 Hz, 1 kHz and 2 kHz**

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| --- | --- |
|  |  |
| **Figure 5** Test bench. |

**Table 1** Test results at 20 Hz

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| --- | --- | --- |
| **Oscilloscope** | **Serial Monitor** | **Summary** |
|  |  |  |

**Table 2** Test results at 200 Hz

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| --- | --- | --- |
| **Oscilloscope** | **Serial Monitor** | **Summary** |
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**Table 3** Test results at 1 kHz

|  |  |  |
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| **Oscilloscope** | **Serial Monitor** | **Summary** |
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**Table 4** Test results at 2 kHz

|  |  |  |
| --- | --- | --- |
| **Oscilloscope** | **Serial Monitor** | **Summary** |
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**Conclusions**

The main conclusions of the study may be presented in a short Conclusions section, which may stand alone or form a subsection of a Discussion or Results and Discussion section.

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